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ABSTRACT

This evaluation report of the Newark (New Jersey) School District's ESEA Title I program examines its eight major components as well as student performance in noncognitive areas and parental involvement. Included among the program components are the Language Experience Program (LEP), Computational Skills Project (CSP), Program for English Proficiency (PEP), Pre-kindergarten/Kindergarten Program, Special Education, Education Center for Youth, Project LINK, and Neglected and Delinquent Student Services. Descriptions of the evaluation models used, the Metropolitan Achievement Test, statistical data for both cognitive and noncognitive areas, and a glossary of terms are appended. A summary of findings for each program component is included in the introduction. It was reported that noncognitive objectives in general were not achieved. Parent Participation was found to be restricted to particular program events with considerable differences in parent involvement between public and private schools. (JCD)

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NEWARK SCHOOL DISTRICT
ESEA TITLE I PROGRAM

EVALUATION REPORT
1980 - 1981
SCHOOL YEAR

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NEWARK SCHOOL DISTRICT
ESEA TITLE I PROGRAM

EVALUATION REPORT
1980-1981
SCHOOL YEAR

Newark Public Schools
Office of Research and Evaluation
2 Cedar Street
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August 31, 1981

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PREFACE

Newark School District is the largest in the State of New Jersey and ranks among one of the twenty-five largest in the nation. Like other urban school districts, Newark faces numerous problems affecting students performance, many of which have been recurring for several years. The Board of Education recognized the need for an Office of Research and Evaluation, in order to address some of these problems in a systematic way and to improve student achievement. However, because of fiscal restraint, the Board was unable to initiate such an endeavor.

The Victoria Foundation, which has placed great emphasis on the improvement of educational opportunities for disadvantaged students in the Newark area, also recognized the need for an Office of Research and Evaluation at the Newark Board of Education and provided "seed monies" to establish the office. The mission of the office is to improve students achievement in a cost-effective manner through:

a. Conducting research on exemplary programs in Newark's educational system,

b. Evaluating the effectiveness of ongoing educational programs, and

c. Tying the results of research and evaluation to program overhaul and/or improvement.

The mission of the office is thus congruent with the Foundation's deepest commitment of "enriching the learning experiences of those at the bottom of the ladder for reasons beyond their control."

With this mission in mind, the Office of Research and Evaluation is currently undertaking a number of projects of which Title I Evaluation is a major one. We are therefore very grateful to the Victoria Foundation for its role in developing the Board of Education's internal capability to evaluate its Title I program for the first time and for the Foundation's sincere commitment to improve educational opportunities for students in the Newark School District.

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August 31, 1981

ACKNOWLEDGEMENTS

In order to accomplish the task of evaluating the Newark Title I Project, many individuals made significant contributions in different ways. The Office of Research and Evaluation sincerely acknowledges these individuals, without whom the task of evaluating this project could not have been completed.

Foremost recognition is due to members of the Newark Board of Education; Mr. Alonzo W. Kittrels, former Executive Superintendent of Schools; Mr. Eugene C. Campbell, Deputy Executive Superintendent of Schools; Dr. Juan Rosario, Assistant Executive Superintendent; Mrs. Edith Gallimore, Executive Director of Personnel; Mr. Joseph Harris, Executive Director of Data Processing; Mr. Daniel Gutmore, Title I Director; and Mrs. Elayne Brodie, Chairperson of the Title I Central Parents Council. These individuals were instrumental in supporting the evaluation effort conducted by the Newark Office of Research and Evaluation. In addition, Mr. Mel Marech, the Liaison of the Department of Federal Assistance Programs, was very cooperative in providing the data to the Office of Research and Evaluation staff. Recognition must also be offered to the Central Office Coordinators, Area Coordinators, Project Coordinators, Project Teachers, Principals, staff, parents and students associated with the Newark Title I Program. Appreciation is also extended to the Educational Improvement Center/Northeast for their assistance in preparing the report through word processing and the final printing of the total report.

Above all, it is appropriate to offer with deep gratitude special thanks to Mrs. Rose Crawford, Corresponding Secretary of the Central Parents Council, and to all the members of Local School Parents Council who offered their help

to the Office of Research and Evaluation during the most difficult times of the evaluation. These parents have demonstrated their sincere dedication to the Title I Project by making themselves readily available to work under very stressful situations.

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CHAPTER 1

INTRODUCTION

1.1 Overview of Newark Title I Program

Title I of the Elementary and Secondary Education Act (ESEA) of 1965 was enacted "... to provide financial assistance to local educational agencies serving areas with concentration of children from low-income families to expand and improve their educational programs by various means which contribute particularly to meeting the special educational needs of educationally deprived children." With ESEA Title I funds, the Newark School District provided remedial services to approximately fourteen thousand eight hundred sixteen (14,816) public school students, one thousand sixty (1,060) nonpublic school students, sixty-eight (68) neglected and delinquent students, and seven hundred sixty- seven (767) secondary students (including the Education Center For Youth), according to figures gathered in March 1981. The distribution of the Title I students by grade and schools (public and nonpublic schools only) is presented in Figures 1.1 and 1.2.

According to data collected during the program evaluation, these students were serviced by approximately one hundred eighty-two (182) Title I professional staff members and four hundred and one (401) nonprofessional staff members. Services were also provided by these staff members in forty-three (43) public elementary schools, eleven (11) nonpublic elementary schools, seven (7) senior high schools, thirteen (13) special education schools and three (3) institutions for neglected and delinquent students.

Figure 1.1

Percent of Title I Students in Each Grade Level — March, 1981

Title I includes
Reading and Math
PEP

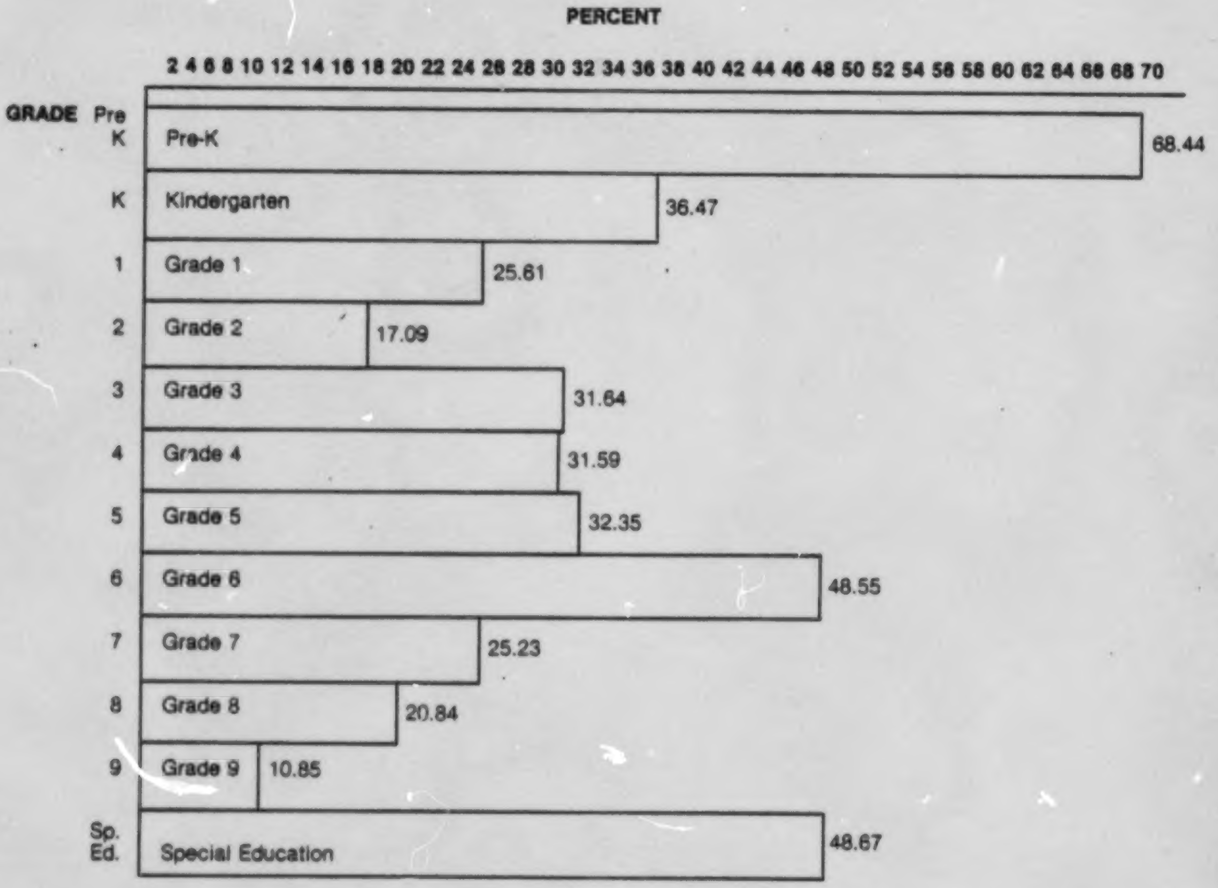


Figure 1.2

Percent of Title I Students in Each School — March, 1981
ELEMENTARY SCHOOLS

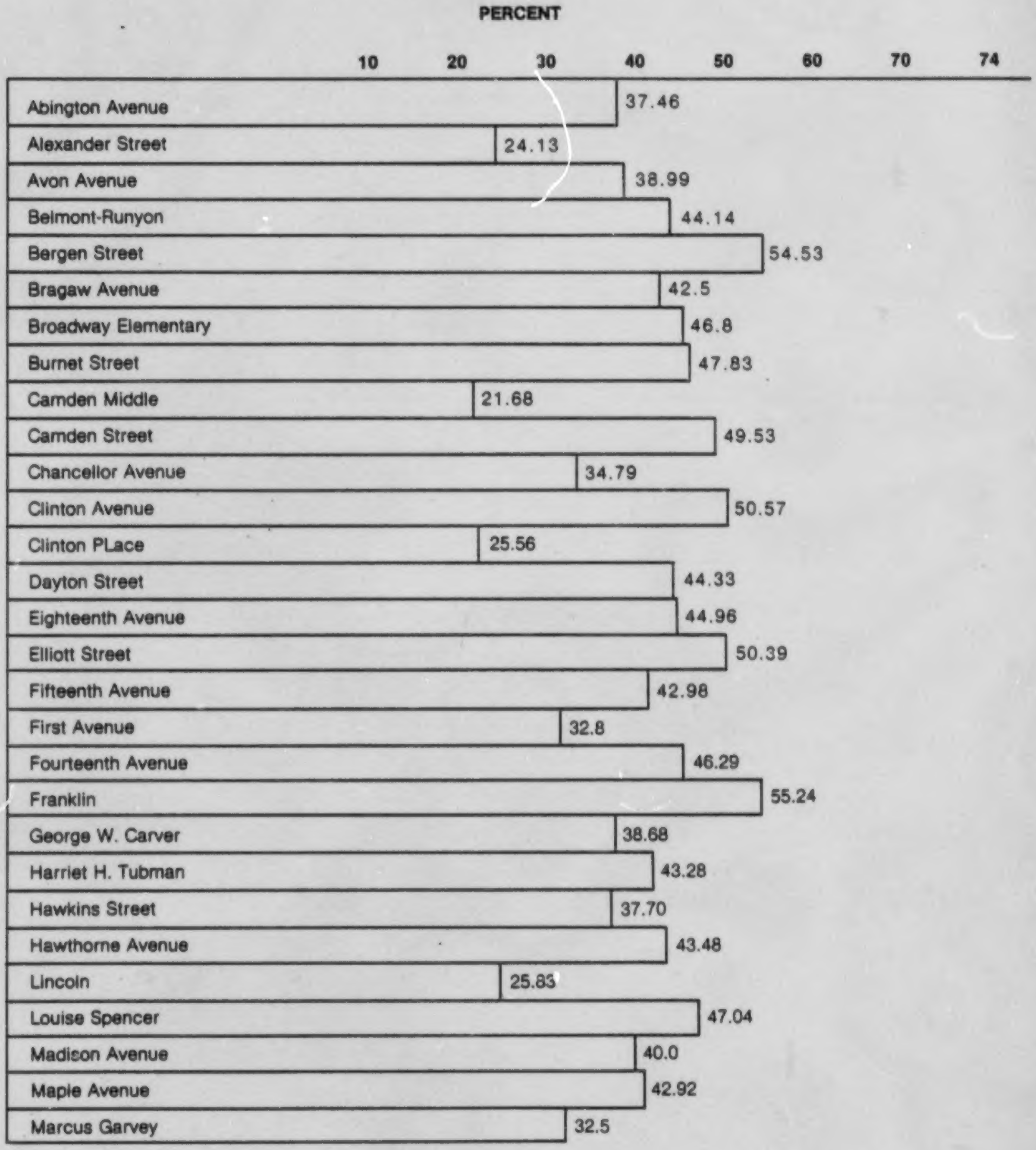
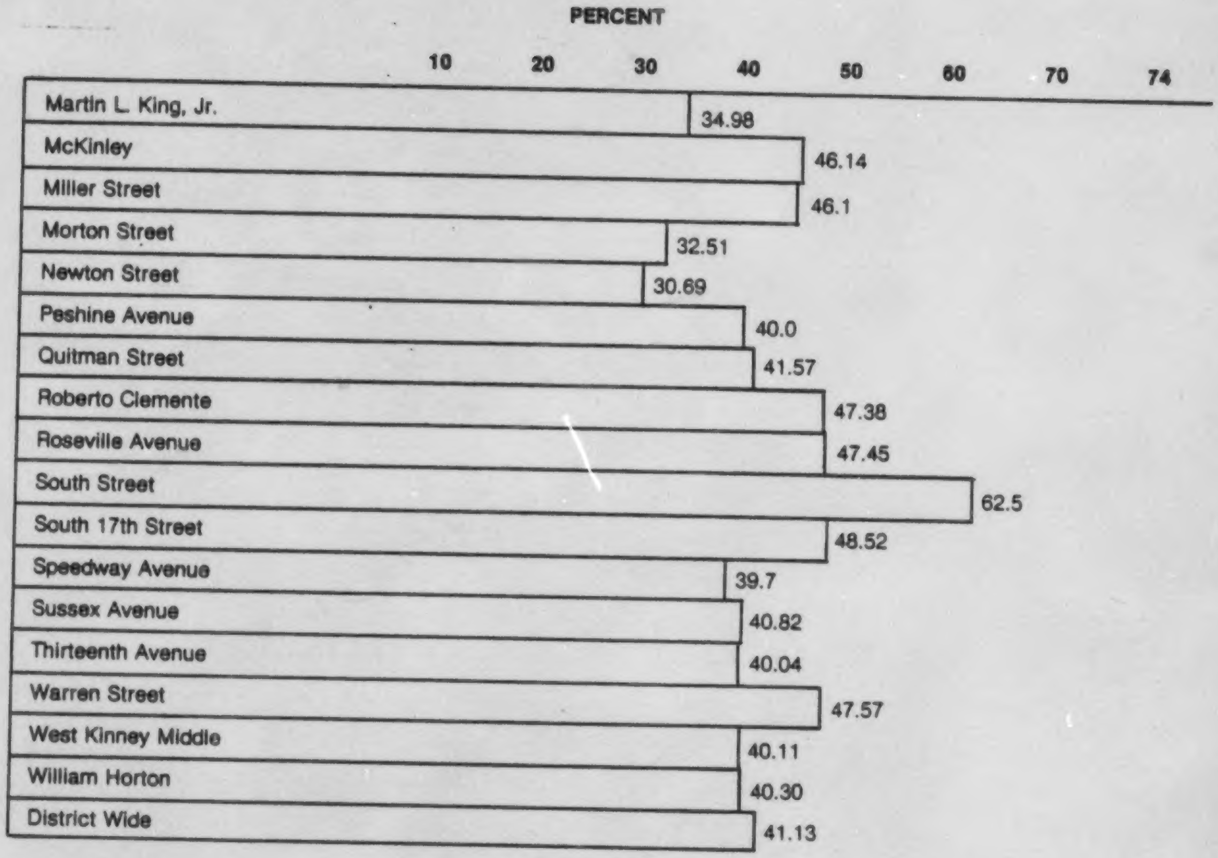


Figure 1.2 (continued)
Percent of Students in Each School — March, 1981
ELEMENTARY SCHOOLS



Note:
Title I students includes
all programs
Reading, Math, PEP,
Special Education

These students received Title I supplementary services in Reading, Mathematics, and English Proficiency. Special Education services were provided to eligible students in grades pre-kindergarten through 9 in supplementary program activities during regular school hours. Supplementary instruction during regular school hours was made available through one or a combination of the following program models:

a. Regular classroom instruction,

b. Pull-out instruction, and

c. Laboratory instruction

The regular district-funded teacher had the responsibility for identifying individual student needs and prescribing appropriate instructional activities. The Title I teacher implemented the remedial program and insured instructional continuity between the regular classroom program and Title I supplementary services.

Articulation between the regular and Title I staff was accomplished through conferences, common planning periods, review of student profile materials and shared instructional responsibilities. Parents were informed of Title I program activities through written communications, scheduled conferences, phone calls, parent advisory council activities, and home visits. Parental involvement was a vital component of Title I supplementary services and was encouraged at all levels.

Title I activities were used to supplement the regular program consisting of two basic components:

a. The regular school program, which is funded from local sources, provided developmental instruction by professional teachers in grades 1 through 12. Instruction was provided to all students in the areas of communication and computational skills as outlined by the district's Reading, Language Arts, Mathematics and other subject matter curriculum guides. These guides also specified the minimum mastery levels required of students. Promotion or retention of students was based upon the mastery of identified sequential skills in communication and computation.

b. Remedial assistance was also provided by the State Compensatory Education Program under Chapter 212 of the Public School Education Act of 1975 (The "Thorough and Efficient" Education Law). This service was provided according to the guidelines of Chapters 192 and 193.

The overall goal of the Newark Title I Program was to address the special needs of the educationally deprived children in low income areas. To attain this goal, specific objectives were developed for children participating in the four major program components: 1) Language Experience, 2) Computational Skills, 3) Program for English Proficiency (PEP), and 4) the Pre-Kindergarten/Kindergarten Project. The objectives were also developed in each of the special programs: Project Link, Paleontology, Special Education, Education Center For Youth, and Neglected and Delinquent Institutions. (The objectives and activities of these programs are described in more detail later in the report).

1.2 Title I Program Budget

Funds for the Newark Title I Program during 1980-81 were provided by the Federal Government under P.L. 89-10 of the ESEA Act of 1965, which was amended by P.L. 95-561 Education Amendments of 1978. The Newark Title I budget was as follows:

Final Allocation	$12,387,057
Impact Aid	----
Migrant	10,885
Carryover	1,453,669
Concentration	832,224
Reallocation	5,000
Total	14,683,835

1.3 Evaluation Design

Since 1965, the ESEA Title I Act has required the evaluation of the program's effectiveness. Initially there were two types of evaluation: 1) a third-party (e.g. a private consulting firm) evaluation at the federal level and 2) local and state reports to the Office of Education. In the first case, the Office of Education had entered into contract with an evaluation firm which would select samples of Title I projects and study the effects of Title I thoroughly. The "Sustaining Effects" study performed by Systems Development Corporation is an example of this approach which was consistent with attempts to evaluate other federally funded programs such as Title VII and Follow Through Projects. In the second case local and state agencies have reported the progress of Title I Projects on specially developed forms to the federal government. Using these procedures, evaluation reports either became too voluminous for any person to read and digest carefully, or the data provided to the federal government varied so widely that they defied meaningful analysis of the effectiveness of the Title I program.

In order to overcome the initial evaluation problems, a contract was awarded to RMC Corporation to review the evaluation procedures and to recommend improvements. As a result of RMC's efforts, Congress established standards for evaluation and provided models with uniformed procedures and criteria to be used. At present several models have been developed to evaluate the cognitive domain of Title I projects in the areas of Language Experience and Computational Skills. While efforts are in progress, models to evaluate other components (such as early childhood, special education and bilingual programs) of Title I programs have not been completed as yet.

Since Newark Title I Project is so complex, it was necessary to employ four different evaluation designs in order to assess its impact on student growth. Two of these designs, the regression model (also known as Model C) and the norm-referenced model (also known as Model A), were mandated by Congress to evaluate cognitive data in the areas of Language Experience and Computational Skills of Title I Programs. (See Appendix A). The other two designs are 1) the one group pretest/post-test design, used to evaluate cognitive data for special programs and noncognitive data for the entire school district; and 2) the survey design, used to assess parental involvement in the Title I Project.

Each of these designs, as they were employed to evaluate the Newark Title I Program, are described in details in Appendix A. In order to comprehend the results of the evaluation, it is necessary to be familiar with the models. Both the Model A and Model C were used to assess the impact of the Newark program for several reasons. The most essential is that Model C is a more robust model than the others. However, when analyzing cognitive data for nonpublic schools, there were not enough subjects to run a regression by grade level. It was therefore decided by the Office of Research and Evaluation to use the Model C design to analyze the data for the public schools and Model A for the nonpublic schools.

1.4 Summary of Findings

1.4.1 Language Experience Program

To assess the Newark Title I Language Experience Program a frequency count was calculated for grade one students in both public and nonpublic schools, a regression analysis (known as Model C analysis) was conducted on public school students actual and predicted reading scores, and a norm-referenced analysis (known as Model A analysis) was employed to analyze the reading scores of students in nonpublic schools. The analyses of reading scores for Title I students during the 1980-81 school year reveal that:

a. Fifty-three (53) to fifty-five (55) percent of all grade one students have attained the objectives for Title I Program.

b. According to the regression analysis, the impact of the Title I remedial services was clearly positive in grades 2 and 9 of the public schools. In the intermediate grades (3 to 8), students performance did not reach or go beyond the expected level of attainment. It was therefore concluded that for these grades, the Title I Program did not attain its objectives. It was not possible to establish the exact degree of effectiveness or ineffectiveness of the program since the correlation between the 1980 reading test and the 1981 reading test was too low to make such a conclusion possible.

c. According to the norm-referenced analysis, the impact of Title I remedial services was positive in grades 3, 6, and 7. In grades 2, 4, and 5, the program did not attain its objective. Even though the program did not attain its objective for grade 8, the difference is so small that it may be due to measurement errors. The same is true for grade 3.

1.4.2 Computational Skills Program

The regression model was also used to analyze public school students' math scores while the norm-referenced model was employed to analyze the math scores of nonpublic school students. The results indicated that:

a. The Title I objectives for Computational Skills were not obtained for any grade level. For grades 2, 6, and 7, students' actual math scores were within the range predicted but did not go beyond the achievement levels expected.

b. The impact of Title I remedial services was clearly positive at the sixth grade level for nonpublic school students. Therefore, the Title I objective for Computational Skills was achieved at this grade level. It was not achieved for the other grade levels.

c. Positive gains for nonpublic schools were also observed at the fourth, fifth and eighth grade levels. However, these gains were not statistically significant.

1.4.3 Program for English Speaking Proficiency

A one group pretest/post-test design using the correlated t-test was employed to assess the PEP remedial program. The results indicated that:

a. With the exception of the fourth grade level, the Title I objective was attained for all grade levels for both public and nonpublic schools in the area of ESL.

b. The Title I objective was also attained for all grade levels, except for the fifth grade, in the area of Language Experience Bilingual. It should be pointed out that unusually high gains were made within a 5-month period for both ESL and LEB students.

This factor might have been influenced by the instruments used for selection purposes and assessment of student performance.

1.4.4 Pre-K/Kindergarten Program

A frequency distribution and percentages of students attaining criterion level were calculated. The findings indicated that:

a. Ninety (90) percent of all public school students with pretest and post-test data had attained the objectives of Title I remedial instruction.

b. Ninety-four (94) percent of all nonpublic school students attained the objectives of Title I remedial instruction. The Pre-K/Kindergarten program was therefore considered highly successful.

1.4.5 Special Education

A frequency count of grade equivalent gains scores was performed to assess student progress. The results indicated that the:

a. Title I objective was not attained for Special Education students in the area of Language Experience. It should be pointed out here that the objective seemed to be very ambitious since it equated the performance of special education students with that of regular students.

b. Title I objective for Special Education students in the area of Computational Skills was not attained. Again it seemed that the objective was too ambitious since it equated the performance of Title I students with that of "normal" students.

1.4.6 Special Programs

A one group pretest/post-test design using the correlated t-test was used to assess the performance of students in special Title I programs. The results indicated that:

a. Title I students at the Education Center for Youth had attained the objective of the Title I remedial program.

b. Students in Project LINK had attained the instructional objective for Title I remedial program at the sixth and seventh grade level. At the eighth grade level the objective was not attained.

c. Data reported for Neglected and Delinquent Institutions defy meaningful analysis. It was therefore not possible to ascertain whether the Title I objective was achieved. The data for the Girls Center also could not be analyzed in a meaningful way.

d. The Title I objective for the Essex County Jail was not achieved. It should be pointed out that students in the neglected and delinquent institutions are highly transient and therefore complete sets of data for meaningful analysis cannot be obtained.

1.4.7 Noncognitive Data

A one group pretest/post-test design using the correlated t-test was employed to assess the students' performance. The results indicated that the:

a. Title I noncognitive objective in the area of Language Experience Program was attained.

b. Title I noncognitive objective in the area of Computational Skills was attained.

c. Impact of Title I remedial services in the noncognitive area for special education students was clearly positive.

d. Title I noncognitive objective was not attained for PEP students in the public schools or the nonpublic schools.

1.4.8 Parental Involvement

A survey was used to assess parental involvement in the Title I Project. The results indicated that:

a. Parents made significant contribution in the areas of proposal development, classroom observations and program evaluation.

b. Parents have also made significant impact on classroom instructional materials. In general, parental participation has been clearly positive.

1.5 Organization of Report

This evaluation report is organized around the major components of the Newark Title I Project. As described earlier, the Title I Project in the Newark school district consists of several major programs: the Language Experience Program, Computational Skills Program, Program for English Proficiency, Special Education Program and other Special Programs. Each program has been evaluated and the data are presented in a separate chapter.

In each chapter for the cognitive data analysis, the objectives of the program have been defined and the methods of selecting pupils described. Additional information on program staff and the type of Title I remedial instruction have been offered to provide the context of the program's effectiveness. Following this basic information, the evaluation design, findings, conclusions and recommendations for each program have been presented. Data analysis has also been presented in terms of public and nonpublic schools participation in the program.

Apart from the cognitive data analyses for the Title I evaluation, there are two additional chapters -- one for the analysis of noncognitive data and one for the evaluation of parental and community involvement. The organization of these two chapters is unique because of the nature of the data presented. For the purpose of improving Title I remedial services, the Newark Office of Research and Evaluation conducted a study on the "sustaining effects" of the Project. (This study is not included in this report, but is available from the Title I Central Office).

CHAPTER 2

LANGUAGE EXPERIENCE PROGRAM

2.1 Project Narrative

2.1.1 Objective

The Language Experience Program (LEP), funded under the Elementary and Secondary Education Act (ESEA) Title I provided remedial reading services to students in grades 1 through 9 in Newark Public Schools. As a result of their participation, the students in the first grade were expected to achieve a mean standard score of thirty-seven (37) points in Reading Comprehension; thirty-eight (38) points in Word Knowledge and thirty-seven (37) points in Total Reading as measured by the Metropolitan Achievement Test (MAT) Primary I administered in May 1981. In addition, students receiving Title I remedial services in grades 2-8 were expected to exhibit better than anticipated growth in their test scores (Model C-1 analysis) as measured by the appropriate level of MAT pretest and post-test. In grade 9, the Comprehensive Test of Basic Skills (CTBS) level 4 was administered as the post-test.

2.1.2. Selection of Students

In May 1980 the Office of Testing for the Newark Board of Education administered standardized achievement tests to all students in grades 1-12 as part of the city-wide testing program. The Metropolitan Reading Test (MRT) was given to grade 1 students. Appropriate levels of the Metropolitan Achievement Test (MAT) were administered to students in grades 2-9 except for the non-English speaking and Special Education Students (see Table 2.1). Cut-off scores were established for students in grades 1-9. Students scoring below the cut-offs were selected for participation in the 1980-81 Title 1 program. Table 2.1 lists the test level for each grade level, the cut-off scores and the number of students selected for participation. A description of the MAT is found in Appendix B.

TABLE 2.1

Test Level Cut-off Scores and Number of Selected Title I Students by Grade Level, Metropolitan Reading Test (MRT), and Metropolitan Achievement Test (MAT), and Comprehensive Test of Basic Skills (CTBS)

Grade Level	Test Level	Cut-off Scores	Number of Selected Pupils
1	MRT	RS 60	1,269
2	MAT Prim I	SS 35	802
3	MAT Prim II	SS 51	1,555
4	MAT Prim II	SS 58	1,656
5	MAT Elem.	SS 62	1,674
6	MAT Elem.	SS 67	1,527
7	MAT Inter.	SS 75	1,037
8	MAT Inter.	SS 79	690
9	MAT Inter. CTBS 4 (post-test)	SS 83 SS 479	634
		Total	10,850

2.1.3 Number of Participants

As noted in Table 2.2 a total of 20,148 public school and nonpublic students were determined eligible for participation in the Language Experience Program (LEP) based on the May 1980 test data. Due to the scope of the program and attrition between May 1980 and September 1980 when the program year began, the number of participating students was reduced to 10,850 or 53.85% of the eligible students.

The numbers presented below in Table 2.2 represent, for each grade level, the eligible and actual number of students as of March 1981. Data for each grade level and for each school are found in Figures 1.1 and 1.2 in Chapter 1 of this report.

2.1.4 Staff

Project Coordinator. Each participating public and nonpublic elementary school had the services of a Project Coordinator. The Coordinator's major responsibilities were:

a. Developing and implementing the instructional program.
b. Planning and conducting inservice for staff.
c. Conducting needs assessment.
d. Keeping accurate fiscal records of supplies and materials.
e. Meeting with parents.
f. Monitoring all phases of the program.

A complete list of Project Coordinator responsibilities can be found in the project proposal (pages 147-149).

Project Teachers. In the Language Experience Program a total of 185 project teachers worked with students in public and nonpublic elementary and secondary schools. Some teachers also provided math instruction to students in the Computation Skills Project. Their primary responsibilities were:

a. Planning and scheduling all Title I instructional activities.

b. Teaching individual and small groups of pupils.

c. Maintaining necessary records.

d. Completing required testing procedures.

e. Conferring with parents.

f. Participating in inservice training.

A complete list of Project Teacher responsibilities can be found in the project proposal (pages 171-172).

TABLE 2.2

Number of Students at Each Grade Level Eligible and Actually Participating in the Language Experience Program (LEP) in September 1980

Grade Level	Number of Students Eligible	Actual Public	Actual Nonpublic	Actual Total
1	1,627	1,202	67	1,269
2	1,462	746	56	802
3	2,326	1,414	141	1,555
4	2,408	1,538	118	1,656
5	2,595	1,537	137	1,674
6	2,673	1,392	135	1,527
7	2,243	935	102	1,037
8	2,308	626	64	690
9	2,506	634	0	634
TOTAL	20,148	10,030	820	10,850

Teacher Aides. A total of 273 teacher aides were assigned to public and nonpublic elementary schools in the Language Experience Program. (Some teacher aides also provided services to the Computation Skills Projects). The teacher aides worked under the direction of the Project Coordinator and classroom teacher to supplement and reinforce instruction. They assisted in testing, preparing materials, and using audio-visual equipment. To acquire the skills necessary to perform these functions, they participated in inservice training sessions. A complete list of a teacher aide's responsibilities can be found in the project proposal (pages 173-184).

Community Aides. Fifty-six (56) community aides were assigned to assist in all aspects of parent and community involvement. (See pages 155-156 of project proposal for complete list of activities). A total of 255 1/2 professional and 358 1/2 nonprofessional staff were included in the 1980 Title I Language Experience Program. Described below are those positions which interact most directly in the instructional process. Table 2.3 presents the staff assigned to LEP.

TABLE 2.3

Language Experience Program Staff Assignment

	Staff Assigned to LEP				
	Coor.	Teacher	Teacher Aide	Comm. Aide	Clerk
Public-Elementary	46	160	228	45	46
Secondary	0	10	0	0	0
NonPublic	10.5	9.5	22	10	7.5
Total	56.5	179.5	250	55	53.5

2.1.5 Frequency of Instruction/Adult-Pupil Ratio

In May 1981 project teachers and teacher aides were asked to complete a survey asking for frequency of instruction (minutes per week) and adult/pupil ratio. The results indicated no regualar district-wide pattern exists. There were variations from school to school, within schools, and often within grade levels in schools. Frequency of instruction ranged from 18 to 300 minutes for teachers and aides. Adult/pupil ratio ranged from a low of 1 to 1 to a high of 1 to 51. This ratio represents the total number of students with whom a teacher/teacher aide was in direct contact, both within and across grade levels for the entire school year. The same patterns were reported in both public and nonpublic schools.

2.1.6 Educational Setting

In February 1981, a survey was conducted to determine the degree to which each of the following three educational settings were used in the Language Experience Program (LEP):

> Pull-out. At least 75% of the Title I funded instruction occurs in a location other than the regular classroom.
>
> Regular Classroom. At least 75 % of the Title I funded instruction occurred in regular classroom of Title I participants.
>
> Laboratory. At least 75% of the Title I funded instruction occurred in a location other than the regular classroom, and that instruction used teaching machines primarily or exclusively.

A summary of the data (Table 2.4) revealed that the most often used educational setting in both public and nonpublic schools in grades 2-8 in the Language Experience Program was the pull-out setting. Far fewer schools supplemented instruction in either the regular classroom or the laboratory setting. For example, at the fourth grade level in Language Experience Program (reading), twenty-seven (27) public schools used a pull-out setting, fifteen (15) public schools used a laboratory and six public schools used the regular classroom setting. In a small number of schools, several educational settings were used for supplementary instruction. It was reported, however, that individual students were assigned to only one setting. In other words, if a student was in a pull-out setting, he was not assigned to the laboratory nor was he given supplementary instruction in a regular classroom. However, those schools with laboratories used them almost exclusively to other educational settings. Ninth graders in all junior and senior high schools received reading remediation only in the laboratory setting.

Table 2.4 presents the number of public and nonpublic schools using each educational setting at each grade level. A total of forty-six (46) public elementary schools, ten (10) nonpublic elementary schools, one (1) junior high school and seven (7) high schools completed and returned the survey instrument.

2.1.7 Activities and Materials

The specific kind of reading instruction provided in the Language Experience Program component differed from school to school, grade to grade district-wide and often from grade to grade within a school. Described below are the major program activities included in LEP.

High Intensity Learning Center. The Learning Center involved the use of a wide variety of selected publisher materials and audio-visual equipment: System 80 machine, cassette and tape players, listening stations and record players for visual and auditory discrimination in the various reading systems.

TABLE 2.4

Number of Schools Using Each Educational Setting

Language Experience Program

	Educational Setting					
	Regular Classroom		Pull-Out		Laboratory	
Grade Level	Public	Nonpublic	Public	Nonpublic	Public	Nonpublic
1	36	10	11	3	0	0
2	15	3	27	4	8	1
3	10	5	32	6	12	2
4	6	3	27	5	15	2
5	7	3	20	5	13	2
6	8	3	23	7	9	2
7	6	1	16	6	8	0
8	6	1	9	4	3	0
9	0	0	0	0	7	0

Data reported in February 1981 by Title I Project Coordinators

Individual and Small Groups Instruction. Prescriptive type learning activities based upon individual assessment were provided by project teachers to individuals and small groups of students. The materials available for use included:

MacMillan Basic Reading

McGraw Hill Programmed Reading

Cureton Reading

Distar (S.R.A.)

Lippincott Basic Reading

Ginn and Company

Newark Instructional Management Systems (NIMS)
Junior and Senior Controlled Readers
Teacher Prepared Materials

2.1.8 Paleontology Program

The Supplementary Education Center, located at the Newark Museum, housed the Title I Paleontology program. This unique science oriented program was entitled "Let's Find Out About Fossils". The Title I project coordinator incorporated word recognition, phonetic and structual analyses, vocabulary development, and oral reading into a science oriented reading lesson along with the development of writing, speaking, and listening skills. The program was geared primarily toward Title I participants in the middle elementary grades (4th, 5th, 6th grades), although the project coordinator's presentation captured the interest of students at all grade levels. The actual participating grades ranged from two to eight. The objectives of the Paleontology program were to:

a. Increase the participating pupils reading ability and vocabulary by utilizing a unique reading approach, "Dino-namics", and by incorporating the interest children have in prehistoric life with basic skills.

b. Strengthen the participating pupils' observation techniques and listening skills by placing the pupils in a new and stimulating environment such as the Newark Museum and by utilizing interesting and creative teacher-made materials.

c. Provide the participating pupils with the opportunity to experience outdoor education.

d. Present learning in a "fun" manner and provide social interaction between pupils in the learning process.

To participate in the Paleontology program, the Title I project coordinators at the various schools contacted the paleontology program coordinator to make arrangements for either a school lecture, museum visit, or fossil trip (only Title I pupils were able to participate in the paleontology program). The Paleontology project coordinator had divided the program into three phases. Each phase provided the basis for the next phase, although a phase may be administered out of order.

Phase 1 - School Visitation. This segment of the program entailed a lecture and demonstration for approximately one hundred Title I participants at their respective school. The lecture lasted about one hour. Through the use of fossil identification, fact sheets (Spanish and English) and teacher-made materials (dinosaurs constructed out of plywood and wooden flashcards) the project coordinator presented a science lesson emphasizing the basic skills. The pupils were shown books on dinosaurs and prehistoric life and were encouraged to visit the school library in order to check-out library books.

Phase 2 - Workshop at Newark Museum. In the second phase, the participating Title I pupils visited the Newark Museum for a three-hour session which included a movie about ancient life, demonstrations by the project coordinator (reproductions of fossils using plaster casts and rubber molds), and experience in a laboratory situation (seeing and touching petrified wood, dinosaur bones and tracks, and other specimens). The museum visits included a one hour demonstration on astronomy at the museum's planetarium in order to expose the pupils to other earth sciences.

Phase 3 - Field Trip. The third phase of the Paleontology program consisted of a fossil hunting trip to East Stroudsburg, Pennsylvania, an area rich in specimens as old as 370 million years. The project coordinator described the various geological and geographical points of interest as the bus traveled to and from its destination. Prior to the trip fossil identification sheets, road maps, and mileage charts were identified and a mini-museum was established in the classroom. Not only did the pupils experience success in the discovery of fossils, but their interest in ancient life was maintained through the class museum.

As can be seen on Table 2.5, over 9700 Title I students participated in the Paleontology component.

TABLE 2.5

Numbers of Title I Pupils Participating in the 1980-81 Paleontology Program.

School Lectures and Museum Visits (September 1980 to April 1981)	9742 Pupils
Fossil Trips (April 1981)	120 Pupils

2.2 Project Evaluation - Overview

2.2.1 Evaluation Design

The objective of the Title I Language Experience Program (LEP) is to help participating students in grade 2 to 9 improve their reading achievement beyond the level that could be expected or brought about through the regular classroom instructional program.

To determine whether the Title I Program objective stated previously has been met in each grade or how closely it has been approached, a special regression model, known as Model-C, was used to analyze student reading performance over a one-year period from May 1980 to May 1981. (A full description of the Model C is provided in Appendix A). The Model C evaluation was executed in 3 steps: a) The selection of a treatment group (Title I students) and a control group (regular classroom students), based on a pretest needs assessment (1980); b) From the control group's achievement level, an average reading score is estimated for the Title I pupils on the post-test (1981); and c) The estimate or expectation is compared to the actual performance of the Title I pupils, and the difference is analyzed for statistical significance with a t-test.

With this kind of analysis, it was possible to answer four basic questions: 1) Has the program met its objective? This question is simply answered by comparing the estimated mean score for the Title I students to their actual mean score on the post-test. 2) Has any secondary goal been achieved, such as the reduction of disparities among participating students? This question is best answered by comparing the coefficient of variation from pretest to post-test in the Title I population. 3) Is the Title I program equally effective (or ineffective) with all students enrolled, and as a result, should the program be adjusted in order to make the rate of progress, if not uniform, at least more consistent? This question is best answered by comparing the mean score change to the change at the cut-off line. 4) What is the percentage of the Title I population that will still be in need of remedial services in the coming year? This question is best answered by transforming the various scores into z-scores, and obtaining the probability associated with the cut-off score for the next higher grade.

The four questions posed above will function as guidelines to discuss the results of the Model-C evaluation. This evaluation report provides a grade by grade discussion for the public school Language Experience Program. Following an overview of all grades for the public school, there is a discussion of the nonpublic school results.

2.3 Project Evaluation, Grade 1 (Public Schools)

2.3.1 Evaluation Design

According to the objective of the Title I Program, each first grade student was expected to achieve a mean standard score of thirty-seven (37) in reading comprehension; thirty-eight (38) in word knowledge and thirty-seven (37) in total reading as measured by the Metropolitan Achievement Test (MAT). To assess this objective, it was necessary to conduct a frequency count for each of the subtests in order to determine the number of students who attained the criteria stated in the objective. This was necessary since two different tests were used to assess students preintervention and post-intervention performance.

However, there were some students who repeated first grade instruction. For these students there were pretest and post-test scores from one instrument, the MAT. It was therefore possible to conduct a pretest/post-test analysis for these students. The mean score and standard deviation for all students were calculated and, for those students who had pretest and post-test scores on the MAT, a correlated *t*-test was used to analyze the means of the pretest and post-test for statistically significant differences.

2.3.2 Findings

To assess the Title I objective for grade one students, the public and nonpublic school pupils were combined. An examination of Table 2.6 indicates the number of students who scored above and below the criteria levels stated in the objective for each of the MAT subtests administered in May 1981. It can be seen that fifty-four (54) percent of all the Title I pupils in the public and nonpublic schools attained a score of 37 in total reading. It therefore can be concluded that the Title I objective was attained for 54 percent of the participating students.

Table 2.6 also reveals that 55 percent of all Title I pupils in Newark School District attained the criterion level for reading comprehension subtest. When the word knowledge subtest was considered, 53 percent of all grade one pupils demonstrated that they had attained the proficiency level stated in the objective. From these findings, it was concluded that the Title I Program for Newark's first grade students partially attained its objective. A more detail analysis of the MAT subtests by school is offered in Appendix C.

Among the students included in this evaluation were sixty-one who had repeated first grade and for whom two sets of MAT scores (from 1980 and 1981) were available. Therefore, it was possible to conduct a pretest/post-test analysis for each of the subtests administered. Table 2.7 presents the means, standard deviations and $\underline{t}$-value for each subtest. For word knowledge the means were 28.77 on the pretest and 38.14 on the post-test; the standard deviations were 5.71 and 8.14 on each test respectively. With 60 degrees of freedom, the required value of $\underline{t}$ is 1.671 and 2.39 at the .05 and .01 alpha levels. The obtained value of $\underline{t}$ for word knowledge was 8.92, indicating that there was statistically significant difference between the pretest and post-tests. Hence, it was concluded that those students who repeated first grade made significant progress in word knowledge. This was also true for reading comprehension ($df=60$; $t=5.14$ and $p < .01$) and total reading scores ($df=60$; $t=8.61$ and $p < .01$).

TABLE 2.6

Frequency Distribution of Reading Scores for Subtests and Total Reading, Metropolitan Achievement Test (MAT) Public and Nonpublic Schools

Score Range	Frequency Count		
	Word Knowledge	Reading Comprehension	Total Reading
1- 5	0	0	0
6-10	0	0	0
11-15	1	2	3
16-20	24	22	21
21-25	47	41	45
26-30	202	187	206
31-35	195	203	191
36-40	193	205	195
41-45	209	196	213
46-50	100	108	94
51-55	23	28	25
56-60	13	14	14
61-65	4	6	4
66-70	1	0	0
71-75	1	1	2
TOTAL	1,013	1,013	1,013

TABLE 2.7

Pretest and Post-test Means and Standard Deviations

for Reading Subtests

Metropolitan Achievement Test (MAT)

		Pretest		Post-test		Value of
	N	Mean	S. D.	Mean	S. D.	_t_
W. K.	61	28.77	5.71	38.14	8.74	8.92*
R. C.	61	30.83	6.52	37.29	7.32	5.14*
T. R.	61	28.36	6.11	37.14	6.96	8.61*

*Statistically significant at .05 level

W. K. = Word Knowledge
R. C. = Reading Comprehension
T. R. = Total Reading

2.3.2 Conclusions and Recommendations

It has been demonstrated that the Title I Program has partially attained its objective for grade one students. The objective was attained for each of the subtests administered and for total reading. It seems impractical to expect all the students in grade one to attain the mastery level stated in the objective. However, if the number of students who are expected to attain the mastery level was stated, then it would have been possible to arrive at a more decisive conclusion about the effectiveness of Title I Program in the first grade.

From an analysis of the MAT subtests for those students who repeated first grade, it was found that these students had made significant gains. Whether these gains were due solely to the Title I intervention services could not be ascertained from the data gathered. It is possible that Title I intervention services might have been only one of the many factors that accounted for the significant improvement of student scores. Another essential factor might be maturation, that is, an interaction of Title I remedial services and growth could have accounted for most of the gains observed.

2.4 Project Evaluation - Grade 2 (Public Schools)

2.4.1 Evaluation Design

To evaluate the impact of the Title I Language Experience Program in grade 2, the MAT test data were examined for a sample of 995 students. Among them, 317 were Title I participants. This figure accounted for only 42% of the grade 2 Title I enrollment (as of March 1981), but it represented all the Title I students in this grade for whom both pretest and post-test scores were available. Using a systematic random sampling procedure (1/5), 678 students were selected for the comparison group.

Seventeen percent of the students in this grade who were reported to be Title I participants actually had pretest reading scores above the cut-off point of 35. Similarly, many of the students in the original comparison group had pretest scores below that threshold or were participating in the State Compensatory Education (SCE) program. After appropriate adjustments were made for these deviations, the group selected for the regression analysis included 251 Title I participants (treatment subgroup) and 263 regular classroom students (control subgroup).

The summary statistics derived from the regression analysis are reported in Table 2.8. They include the pretest and post-test means with their respective standard deviations; the expected post-test mean for the treatment group and the standard error of estimate; the mean gain or pretest to post-test score change in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this gain; the values of the lower intercepts and of the upper intercepts (where the regression lines touch the cut-off selection line); and the intercept difference and its index of significance.

TABLE 2.8

Selected Statistical Data for Title I Students (Public Schools)
in the Language Experience Program (LEP)
Metropolitan Achievement Test (MAT), Grade 2

	Treatment Grp. (N=251)	Control Grp. (N=263)
1. Pretest mean	30.85	45.10
2. Standard deviation for (1)	3.59	6.2
3. Post-test mean	47.12	55.83
4. Standard deviation for (3)	6.21	9.08
5. Expected post-test mean	45.50	
6. Standard error of estimate	7.9	
7. Difference at mean	1.62	
8. _t_ value for (7)	1.8*	
9. Lower intercepts	36.73	23.09
10. Upper intercepts	48.51	48.5
11. Difference at intercepts	.01	

*Significant at the .05 level.

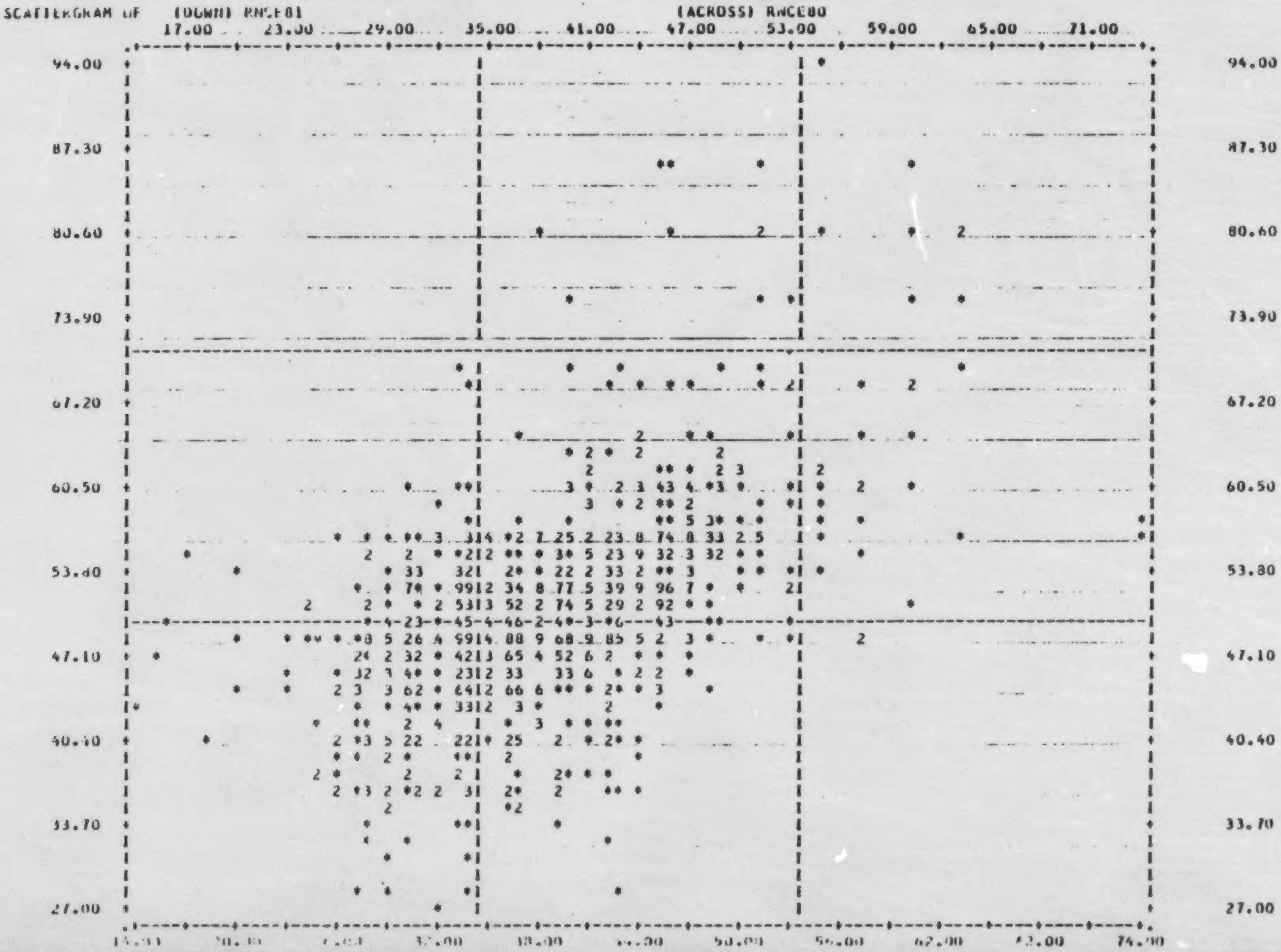
A word of caution is necessary before the meaning of these statistics is discussed. It should be noted that the correlation between the 1980 scores and the 1981 scores for the control group students is only .495. This relatively low correlation is not due to floor or ceiling effects, as can be seen in Figure 2.1. In practical terms, the limited pretest and post-test correlation means two things. First, only 25 percent of the variation in the 1981 achievement of the control group can be explained from the pretest. Certain factors (educational, social or economic) were influencing student performance in this group. Secondly, the mean achievement level predicted for the Title I students was probably overestimated.

2.4.2 Findings

It was found that the Title I participants had an average reading score of 30.85 in May 1980 as compared to a mean of 45.10 for the regular classroom students. This represents a 14.25 point gap between the two subgroups. In the absence of the Title I supplemental instruction, a deficit of at least 10 points could still be expected between them. As a result, the mean reading score on the MAT administered in 1981 to Title I students was expected to be 45.50 when compared to a mean of 55.83 for the comparison group. In actuality, since the Title I students achieved an average of 47.12, there was a difference of 8.71 between Title I students and those students in the control group. Their improvement in reading was therefore better than expected. The mean gain of 1.62 standard score is statistically significant at the .05 level and can be translated into a 3.4 NCE gain. Thus, the objective of the program has been met in the second grade.

It is now important to determine whether this change in achievement level is general or localized; i.e., whether the entire group or only a small subgroup of Title I students were responsive to the remedial instruction at

FIGURE 2.1 DISTRIBUTION OF READING TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 2



this grade level. To obtain the necessary information in this area, a comparison is made of the coefficients of variation for the Title I students, from one year to the next. The coefficient of variation on the pretest is equal to .115 (3.59/30.86), indicating that the Title I enrollment was relatively homogeneous during the 1980-81 year. Although the standard deviation almost doubled from pretest to post-test, the change in the coefficient of variation is only .016 (from .115 to .131). The implication of this finding is that the change in the mean achievement score is not simply due to a few pupils doing unexpectedly well. All participants in the Title I program at this grade level have been to some extent sensitive or responsive to the remedial instruction.

The actual degree of responsiveness is another matter that was best clarified through a comparison of the gain at two different points of the score distribution: the middle point (mean) and the upper tail (where the regression lines intercept the cut-off point). The expectation was that a pupil scoring near the cut-off point of 35 would, in the absence of the Title I remedial support, obtain a post-test score of 48.50. This projection closely matches the actual performance (48.51). The difference of .01 standard score between the two figures was not statistically significant and corresponded a to a NCE value of 0. Since there was a net discrepancy between the mean gain and the 'gain' at the upper end of the score distribution, it was concluded that the Title I program has not had an equally strong impact on all the participants. The students who were most in need academically benefited much more than those who were near the cut-off line.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 3 who had a MAT reading score of 51 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation, it is calculated that about 27% of the formerly Title I participants scored above the 51 threshold and will no longer be in need of the remedial service. The remaining 73% of the students should still be considered for the supplemental instruction in the coming academic year.

To summarize, the Title I students in grade 2 have achieved a better than expected mean reading score. Although all the participants seemed to have been responsive to the remedial instruction, the impact of the program was not equally strong for all. The pupil originally with the greater need achieved most through the project.

2.5 Project Evaluation - Grade 3 (Public Schools)

2.5.1 Evaluation Design

To evaluate the impact of the Title I Language Experience Program in grade 3, the MAT test data were examined for a sample of 1,298 students. Among them, 704 were Title I participants. This figure accounted for only 50% of the grade 3 Title I enrollment (as of March 1981), but it represented all the Title I students in this grade for whom both pretest and post-test scores were available. This group constituted the first stratum of the sample. Using a systematic random sampling procedure (1/5), 594 students were selected for the comparison group.

Eight percent of the students in this grade who were reported to be Title I participants actually had pretest reading scores above the cut-off point of 51. Similarly, 60 percent of students in the original comparison group had pretest scores below that threshold. After appropriate adjustments were made for this inconsistency, the group selected for the regression analysis consisted of 651 Title I participants (treatment subgroup) and 234 regular classroom students (control subgroup).

The summary statistics derived from the regression analysis are reported in Table 2.9. They include the pretest means and post-test means with their respective standard deviations; the expected post-test mean for the treatment group and the standard error of estimate; the mean gain or average pretest to post-test score change in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this gain; the values of the lower intercepts and of the upper intercepts (where the regression lines touch the cut-off selection line); and the intercept difference and its index of significance.

A word of caution is necessary before the meaning of these various statistics is discussed. It is important to note that the correlation between the 1980 scores and the 1981 scores for the control group students is only .44. This relatively low correlation is not due to floor or ceiling effects on the test as can be seen in Figure 2.2. Only three students obtained a standard score lower than 25, and no more than five scored above 86 on the pretest. In practical terms, the limited pretest and post-test correlation means two things. First, less than 25 percent of the variation in the 1981 achievement of the control group can be explained from the pretest. It seems very certain that other factors (educational, social, or economic) were influencing student performance in this group. Secondly, the mean achievement level predicted for the Title I students from such a coefficient was probably overestimated.

FIGURE 2.2 DISTRIBUTION OF READING TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 3

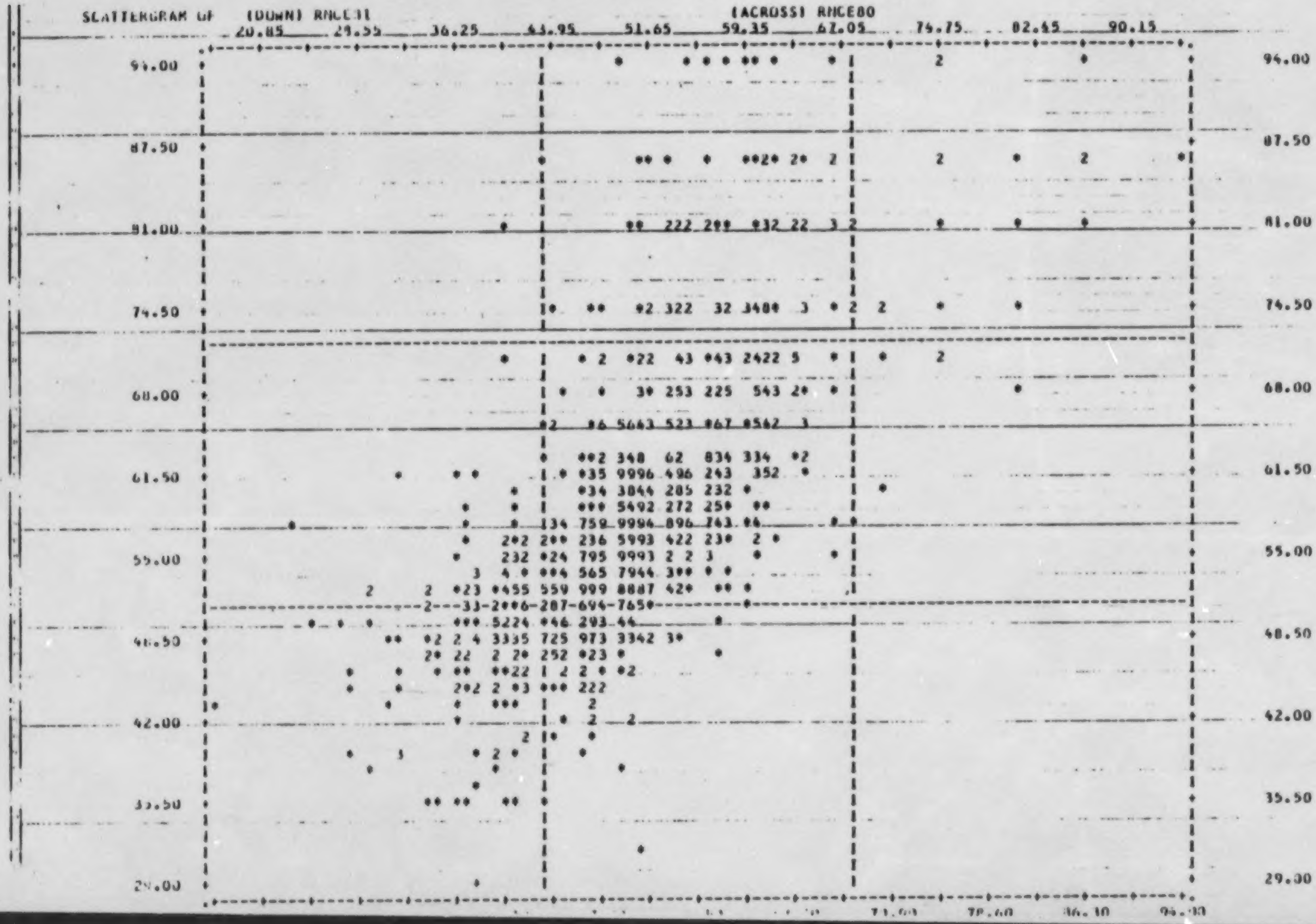


TABLE 2.9

Selected Statistical Data for Title I Students (Public Schools) in the Language Experience Program (LEP) Metropolitan Achievement Test (MAT), Grade 3

		Treatment Grp. (N=651)	Control Grp. (N=234)
1.	Pretest mean	45.82	59.94
2.	Standard deviation for (1)	5.00	6.95
3.	Post-test mean	53.64	68.58
4.	Standard deviation for (3)	6.87	10.23
5.	Expected post-test mean	59.43	
6.	Standard error of estimate	9.22	
7.	Difference at mean	-5.79	
8.	t value for (7)	3.9*	
9.	Lower intercepts	25.82	29.72
10.	Upper intercepts	56.78	62.78
11.	Difference at intercepts	-6.0	

*Significant at the .05 level.

2.5.2 Findings

It was found that the Title I participants had an average reading score of 45.82 in May 1980 as compared to a mean of 59.94 for the regular classroom students. This figure represented a 14.12-point gap between the two subgroups. In the absence of the Title I supplemental instruction, a deficit of at least 9 points could be anticipated between the two groups at the end of 1981 school year. As a result, the mean reading score on the MAT administered in 1981 to

Title I students was expected to be 59.43 when compared to the average of 68.58 for the control group. In actuality, the Title I students obtained an average score of 53.64. Their improvement in reading was therefore less than what could be expected. They fell short by 5.79 point of attaining the predicted achievement level. This negative difference was statistically significant at the .05 level and can be translated into a deficit of -10.2 NCE score. It was therefore concluded that the objective of the program was not attained at the third grade level.

This fact does not mean that no other cognitive gains were made. The instructional staff might have concentrated on reducing disparities within the Title I population in this grade rather than on maximizing scores. To obtain additional information in this area, a comparison was made of the coefficients of variation for the Title I students from one year to the next. The coefficients of variation were respectively .109 on the pretest (5.00/45.82) and .128 on the post-test (6.87/53.64). Obviously, the degree of homogeneity was practically the same; there was no major reduction of the variability of reading scores among the program participants. This result also meant that the insufficient increase in the mean achievement level was not caused by a few pupils whose poor performance would tend to hide the progress made by another group. The underachievement or lack of progress was registered throughout regardless of the pretest performance or achievement level.

The area of greatest concern can be further explained through a comparison of the anticipated and actual post-test scores at two different points of the score distribution: the middle point (mean) and the upper tail (where the regression lines intercept the cut-off mark). The expectation was that a pupil scoring near the cut-off point of 51 would, in the absence of the Title I remedial support, obtain a post-test score of 62.78. The actual performance

(56.78) fell a full 6 points short of that projection. The difference between the two figures was statistically significant at the .05 level and corresponded to a NCE value of -9.6. Since this discrepancy obtained at the upper tail of the distribution was larger than the one observed at the central point, it was concluded that the underachievement problem was most critical with the 'more able' students. The instructional strategy for the coming year should be tailored to help this specific subgroup.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 4 who had a MAT reading score of 58 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation, it was calculated that about 26 percent of the formerly Title I participants scored above the 58 threshold, and thus will no longer be in need of the remedial service. The remaining 74 percent of the students should still be considered for the supplemental instruction in the coming academic year.

To summarize, the Title I students in grade 3 did not achieve a reading score at the expected level. Regardless of the student score on the pretest, their performance on the post-test was below the criterion level. The problem is most critical with the pupils who originally scored near the cut-off line.

2.6 Project Evaluation - Grade 4 (Public Schools)

2.6.1 Evaluation Design

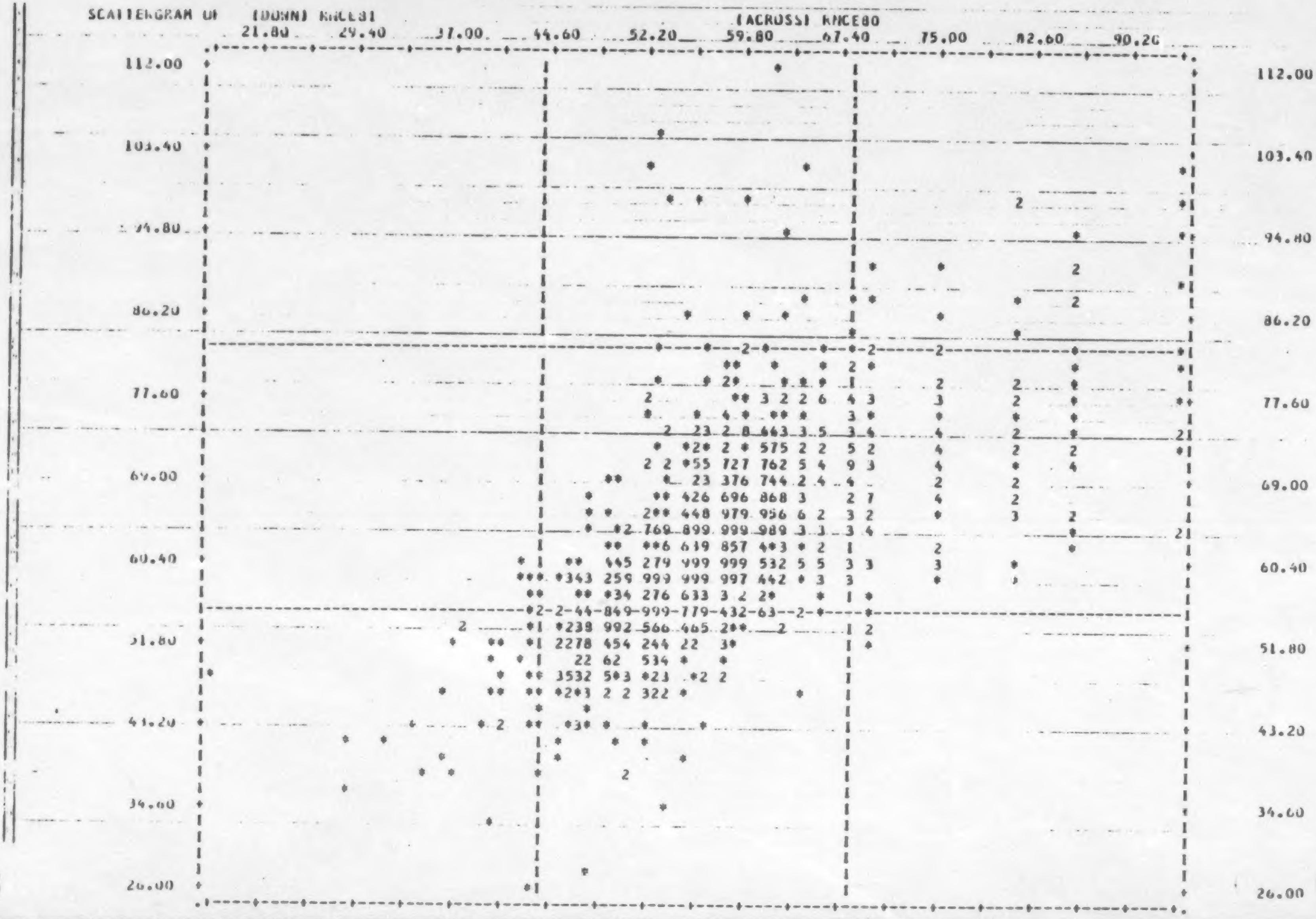
To evaluate the impact of the Title I Language Experience Program in grade 4, the MAT test data were examined for a sample of 1,520 students. Among them, 798 were Title I participants. This figure accounted for only 52 percent of the grade 4 Title I enrollment (as of March 1981), but it represented all the Title I students in this grade for whom both pretest and post-test scores were available. This group constituted the first stratum of the sample. Then, using a systematic random sampling procedure (1/5), a total of 722 students was selected for the comparison group.

Seven percent of the students in this grade who were reported to be Title I participants actually had pretest reading scores above the cut-off point of 58. Similarly, 16 percent of students in the original comparison group had pretest scores below that threshold. After appropriate adjustments were made for these inconsistencies, the students selected for the regression analysis included 737 Title I participants (treatment subgroup) and 227 regular classroom students (control subgroup).

The summary statistics derived from the regression analysis are reported in Table 2.10. This table presents the pretest and post-test means with their respective standard deviations; the anticipated post-test mean for the treatment group and the standard error of estimate; the mean gain or average pretest to post-test score change in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual value or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines touch the cut-off selection line); and the intercept difference and its index of significance.

A word of caution is necessary before the meaning of these various statistics is discussed. It should be pointed out that the correlation between the 1980 scores and the 1981 scores for the control group students is .50. This relatively low correlation was not due to floor or ceiling effects on the test as can be seen in Figure 2.3. Only 10 students obtained a standard score lower than 35, and no more than 12 scored above 90 on the pretest. In practical terms, the limited pretest and post-test association

FIGURE 2.3 DISTRIBUTION OF READING TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 4



means two things. First, less than 25 percent of the variation in the 1981 achievement of the control group can be explained from the pretest. Certain factors (educational, social or economic) are in no small measure influencing student performance in this group. Secondly, the mean achievement level predicted for the Title I students from such a coefficient was probably overestimated.

TABLE 2.10

Selected Statistical Data for Title I Students (Public Schools)
in the Language Experience Program (LEP)
Metropolitan Achievement Test (MAT), Grade 4

		Treatment Grp. (N=737)	Control Grp. (N=227)
1.	Pretest mean	52.98	68.68
2.	Standard deviation for (1)	4.72	9.62
3.	Post-test mean	57.88	70.83
4.	Standard deviation for (3)	7.81	9.05
5.	Expected post-test mean	63.34	
6.	Standard error of estimate	7.81	
7.	Difference at mean	-5.46	
8.	t value for (7)	4.3*	
9.	Lower intercepts	11.04	38.04
10.	Upper intercepts	62.31	65.73
11.	Difference at intercepts	-3.42	

*Significant at the .05 level.

2.6.2 Findings

The first point of interest is that the Title I participants had an average reading score of 52.98 in May 1980 when compared to the mean of 68.68 for the regular classroom students. This represented a gap of 15.70 points between the two groups. In the absence of the Title I supplemental instruction, a deficit of at least 7.5 points could be anticipated between the two groups at the end of 1981. From this information it was projected that the mean reading score for Title I students on the MAT administered in 1981 would be 63.34 as compared to a mean of 70.83 for the control group. The results indicated that Title I students obtained an average score of 57.88. Their improvement in reading was therefore less than what could be expected. They fell 5.46 points short of the predicted achievement level. This negative difference is statistically significant at the .05 level and reveals a gap of -8.3 NCE's. Therefore, the stated objective of the Language Experience Program was not attained at the fourth grade level.

This fact does not mean that no other cognitive gains were made. The instructional staff might have concentrated on reducing disparities within the Title I population in this grade level rather than on maximizing scores generally. To obtain additional information in this area, a comparison of the coefficients of variation for the Title I students from one year to the next was made. The respective coefficients of variation were .08 on the pretest (4.72/52.98) and .13 on the post-test (7.81/57.88). Thus, the degree of heterogeneity or variation in the population has increased rather than diminished. The implication of this finding was that some students, possibly those near the cut-off line on the pretest, were able to slightly improve their performance; but those who were initially at the lower end of the scale experienced even greater difficulty in the reading program. It was evident that the deficit registered by the latter group contributed to maintain the mean below the expected achievement level.

It is now important to obtain confirmation of the slight improvement observed at the top and to see if this gain was sufficient to reverse the previous trend of underachievement among the fourth grade Title I students. An analysis of the anticipated and actual post-test scores at two different points of the score distribution (at the middle point or mean, and at the upper tail where the regression lines intercept the cut-off mark) was conducted. The expectation was that pupils scoring near the cut-off point would obtain a post-test score of 65.73 in the absence of the Title I remedial services. The actual performance fell 3.42 points short of the projection, but the difference between the two figures was not statistically significant at the .05 level. Thus, the progress realized by a few of the students was insufficient to push the performance indicator beyond the expected level. The overall conclusion was that the underachievement problem is most critical among students at the lower end of the scale. Title I remedial instruction for the coming year should be tailored to accommodate to a greater extent this subgroup.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 5 who had a MAT reading score of 62 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation, it was calculated that 30 percent of the formerly Title I participants scored above the 62 threshold, and thus will no longer be in need of the remedial service. The remaining 70 percent of the students should still be considered for the supplemental instruction in the coming year.

To summarize, there has been a slight improvement in the reading performance of a few students. But overall, the Title I students in grade 4 have not achieved a mean score beyond the expected level. The area of greatest concern remained with the pupils who had the lowest scores in May of 1980. A few of them (about 4%) seemed to be experiencing more difficulty.

2.7 Project Evaluation - Grade 5 (Public Schools)

2.7.1 Evaluation Design

To evaluate the impact of the Title I Language Experience Program in grade 5, the MAT test data were examined for a stratified sample of 1,944 students. Among them, 854 were Title I participants. This figure accounted for only 56 percent of the grade 5 Title I enrollment (as of March 1981), but it represented the total number of Title I students in this grade for whom both pretest and post-test scores were available. This group constituted the first stratum of the sample. Then, using a systematic random sampling procedure 1,090 students were selected for the comparison group.

Nine percent of the students in this grade who were reported to be Title I participants actually had pretest reading scores above the cut-off point of 62. Similarly, 19 percent of pupils in the original comparison group had pretest scores below that threshold. After appropriate adjustments were made for these inconsistencies, the group used in the regression analysis included 779 Title I participants (treatment subgroup) and 430 regular classroom students (control subgroup).

The summary statistics derived from the regression analysis are reported in Table 2.11. This table presents the pretest and post-test means with their respective standard deviations; the anticipated post-test mean for the treatment group and the standard error of estimate; the mean gain or average pretest to post-test score change in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual value or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines touch the cut-off selection line); and the intercept difference with its index of significance.

TABLE 2.11

Selected Statistical Data for Title I Students (Public Schools)
in the Language Experience Program (LEP)
Metropolitan Achievement Test (MAT), Grade 5

	Treatment Grp. (N=779)	Control Grp. (N=430)
1. Pretest mean	56.55	73.3
2. Standard deviation for (1)	4.98	8.59
3. Post-test mean	62.22	77.83
4. Standard deviation for (3)	7.6	10.05
5. Expected post-test mean	66.97	
6. Standard error of estimate	8.73	
7. Difference at mean	-4.75	
8. t value for (7)	4.7*	
9. Lower intercepts	12.52	35.68
10. Upper intercepts	67.01	70.50
11. Difference at intercepts	-3.49	

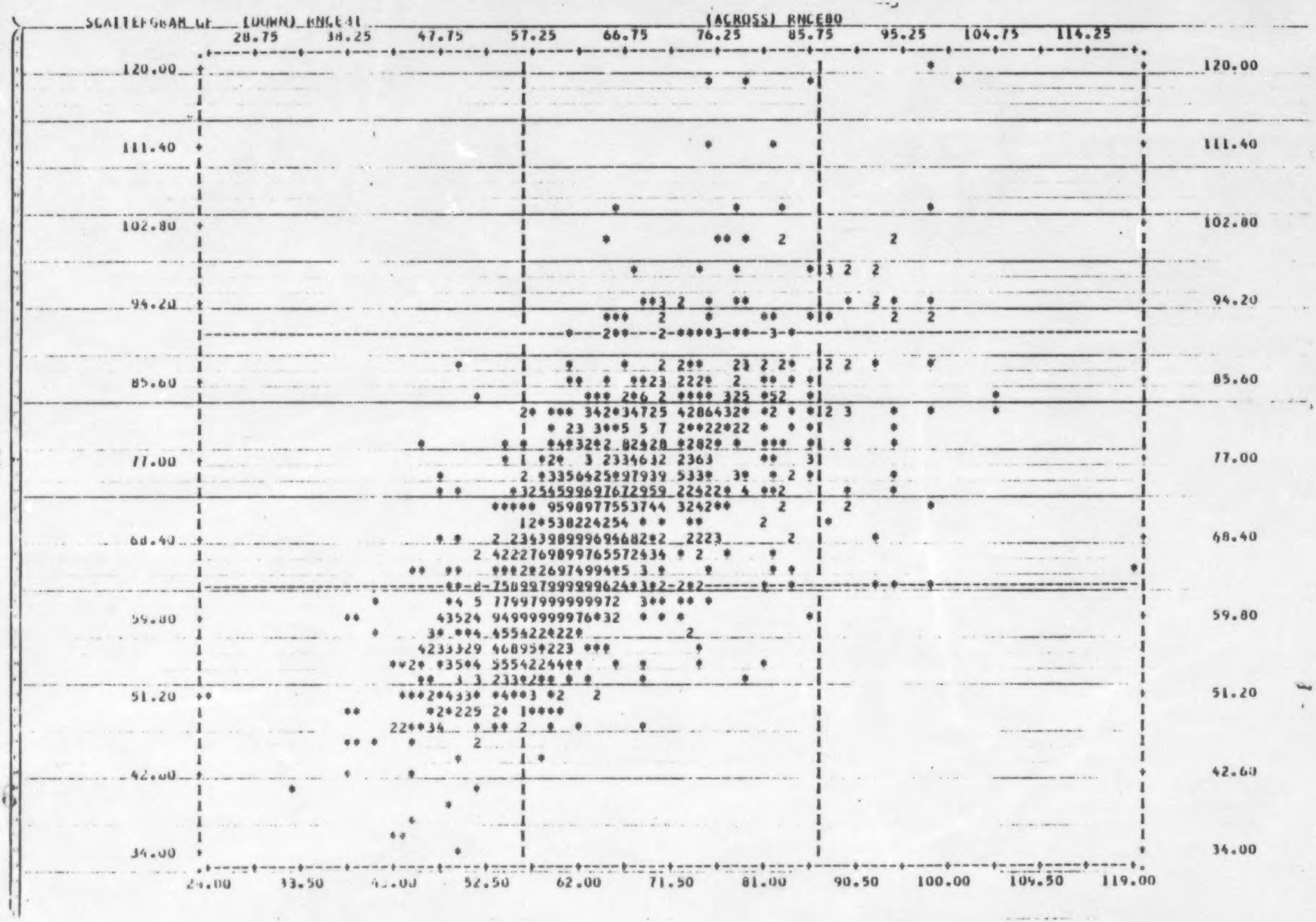
*Significant at the .05 level.

A word of caution is necessary before the meaning of these various statistics is discussed. It should be pointed out that the correlation between the 1980 scores and the 1981 scores for students in the control group is only .49. This relatively low correlation was not due to floor or ceiling effects on the test as can be seen in Figure 2.4. Only 11 students obtained a standard score lower than 40, and no more than 4 scored above 100 on the pretest. In practical terms, the limited pretest and post-test correlation means two things. First, less than 25 percent of the variation in the 1981 achievement of the control group can be explained from the pretest. Other factors (educational, social or economic) are significantly influencing student performance in this group. Secondly, the mean achievement level predicted for the Title I students from such a coefficient was probably overestimated.

2.7.2 Findings

The first point of interest is that the Title I participants had an average reading score of 56.55 in May 1980 when compared to the mean of 73.30 for the regular classroom students. This figure represented a gap of 16.75 points between the two groups. In the absence of the Title I supplemental instruction, a deficit of at least 11 points could be anticipated between the two groups at the end of 1981. In other words, it was projected that the mean reading score for Title I students on the MAT administered in 1981 would be 66.97 when compared to an average of 77.83 for the control group. The finding indicated that Title I students obtained an average score of 62.22 on the MAT in 1981. Their improvement in reading was therefore less than what could be expected. They fell 4.75 points short of the predicted achievement level.

FIGURE 2.4 DISTRIBUTION OF READING TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 5



This negative difference was statistically significant at the .05 level and was converted to an NCE score of -5.7. So overall, the stated objective of the program was not attained at the fifth grade level.

This fact does not mean that no other cognitive gains were made. The instructional staff might have concentrated on reducing disparities within the Title I population in this grade level rather than on maximizing scores generally. To obtain additional information in this area, a comparison of the coefficients of variation for the Title I students from one year to the next was made. The respective coefficients of variation were .08 on the pretest (4.98/56.55) and .12 on the post-test (7.69/62.22). Thus, the degree of heterogeneity or variation in the population has increased rather than diminished. The implication of this finding is that some students, possibly those near the cut-off line on the pretest, were able to slightly improve their performance; but those who were initially at the lower end of the scale were experiencing greater difficulty in the reading program. It was evident that the deficit registered by the latter group contributed to maintain the mean below the expected achievement level.

It is now important to obtain confirmation of the slight improvement observed at the top and to see if this gain was sufficient to reverse the previous trend of underachievement among the fifth grade Title I students. An analysis of the anticipated and actual post-test scores at two different points of the score distribution (at the middle point or mean and at the upper tail where the regression lines intercept the cut-off mark) was conducted. The expectation was that pupils scoring near the cut-off point would obtain a post-test score of 70.50 in the absence of the Title I remedial services. The actual performance fell 3.49 points short of the projection, but the difference between the two figures was not statistically significant at the .05

level. Thus, the progress realized by a few of the students was insufficient to push the performance indicator beyond the expected level. The overall conclusion was that the underachievement problem is most critical among students at the lower end of the scale. Title I remedial instruction for the coming year should be tailored to accommodate to a greater extent this subgroup.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 6 who had a MAT reading score of 67 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation, it was calculated that 26 percent of the formerly Title I participants scored above the 67 threshold, and thus will no longer be in need of the remedial service. The remaining 74 percent of the students should still be considered for the supplemental instruction in the coming year.

To summarize, there has been a slight improvement in the reading performance of a few students. But overall, the Title I students in grade 5 have not achieved a mean score beyond the expected level. The area of greatest concern remained with the pupils who had the lowest scores in May of 1980. A few of them (about 4%) seemed to be experiencing more difficulty.

2.8 Project Evaluation - Grade 6 (Public Schools)

2.8.1 Evaluation Design

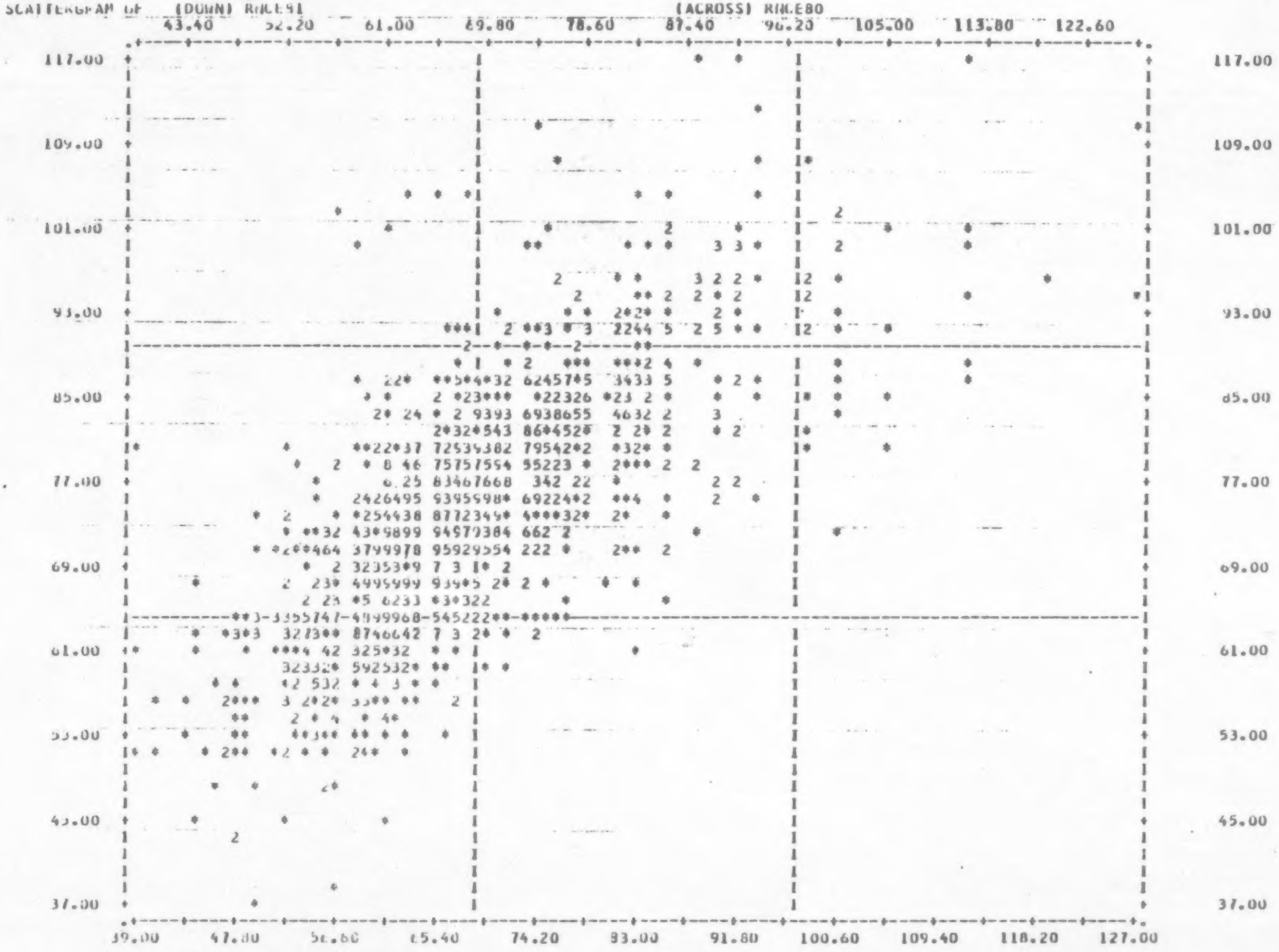
To evaluate the impact of the Title I Language Experience Program in grade 6, the MAT test data were examined for a stratified sample of 1,861 students. Among these students were, 703 Title I participants. This figure accounted for only 51 percent of the grade 6 Title I enrollment (as of March 1981), but it represented the total number of Title I students in this grade for whom both pretest and post-test scores were available. This group constituted the first stratum of the sample. Then, using a systematic random sampling procedure (1/3), 1,158 students were selected for the comparison group.

Seven percent of the students in this grade who were reported to be Title I participants, actually had pretest reading scores above the cut-off point of 67. Similarly, 29 percent of pupils in the original comparison group had pretest scores below that threshold. After appropriate adjustments were made for these inconsistencies, the group used in the regression analysis included 649 Title I participants (treatment subgroup) and 430 regular classroom students (control subgroup).

The summary statistics derived from the regression analysis are reported in Table 2.12. This table presents the pretest and post-test means with their respective standard deviations; the anticipated post-test mean for the treatment group and the standard error of estimate; the mean gain or average pretest to post-test score change in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual value or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meets the cut-off selection line); and the intercept difference with its index of significance.

A word of caution is necessary before the meaning of these statistics is discussed. It should be pointed out that the correlation between the 1980 scores and the 1981 scores for students in the control group is only .57. This relatively low correlation was not due to floor or ceiling effects on the test as can be seen in Figure 2.5. Only 5 students obtained a standard score lower than 40, and no more than 9 students scored above 110 on the pretest. In practical terms, the limited pretest and post-test association means two

FIGURE 2.5 DISTRIBUTION OF READING TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 6



things. First, less than 33 percent of the variation in the 1981 achievement of the control group can be explained from the pretest. Other factors (educational, social or economic) are significantly influencing student performance in this group. Secondly, the mean achievement level predicted for the Title I students from such a coefficient was probably overestimated.

TABLE 2.12

Selected Statistical Data for Title I Students (Public Schools)
in the Language Experience Program (LEP)
Metropolitan Achievement Test (MAT), Grade 6

		Treatment Grp. (N=649)	Control Grp. (N=430)
1.	Pretest mean	60.39	80.15
2.	Standard deviation for (1)	5.11	10.11
3.	Post-test mean	67.96	83.57
4.	Standard deviation for (3)	7.9	9.42
5.	Expected post-test mean	72.99	
6.	Standard error of estimate	7.72	
7.	Difference at mean	-5.03	
8.	t value for (7)	6.1*	
9.	Lower intercepts	17.84	40.63
10.	Upper intercepts	73.43	76.53
11.	Difference at intercepts	-3.1	

*Significant at the .05 level.

2.8.2 Findings

The first point of interest is that the Title I participants had an average reading score of 60.39 in May 1980 when compared to a mean of 80.15 for the regular classroom students. This represented a gap of 19.76 points between the two groups. In the absence of the Title I supplemental instruction, a deficit of at least 10 points could be anticipated between the two groups at the end of 1981. In other words, it was projected that the mean reading score for Title I students on the MAT administered in 1981 would be 72.99 when compared to an average of 83.57 for the control group. The finding indicated that Title I students obtained an average score of 67.96 on the MAT in 1981. Their improvement in reading was therefore less than what could be expected. They fell 5.03 points short of the predicted achievement level. This negative difference is statistically significant at the .05 level and was converted to an NCE score of -7.0. In general, the stated objective of the program was not attained at the sixth grade level.

This fact does not mean that no other cognitive gains were made. The instructional staff might have concentrated on reducing disparities within the Title I population in this grade level rather than on maximizing scores generally. To obtain additional information in this area, a comparison of the coefficients of variation for the Title I students from one year to the next was made. The respective coefficients of variation are .08 on the pretest (5.11/60.39) and .116 on the post-test (7.90/67.96). Thus, the degree of heterogeneity or variation in that population has increased rather than diminished. The implication of this finding is that some students, possibly those near the cut-off line on the pretest, were able to improve their performance slightly; but those who were initially at the lower end of the scale were experiencing greater difficulty in the reading program. It is evident that the deficit registered by the latter group contributed to maintain the mean below the expected achievement level.

It is now important to obtain confirmation of the slight improvement observed at the top and to see if this gain was sufficient to reverse the previous trend of underachievement among the sixth grade Title I students. An analysis of the anticipated and actual post-test scores at two different points of the score distribution (at the middle point or mean and at the upper tail where the regression lines intercept the cut-off mark) was conducted. The expectation was that pupils scoring near the cut-off point would obtain a post-test score of 76.53 in the absence of the Title I remedial services. The actual performance fell 3.1 points short of the projection, but the difference between the two figures was not statistically significant at the .05 level. Thus, the progress realized by a few of the students was insufficient to push the performance indicator beyond the expected level. The overall conclusion was that the underachievement problem is most critical among students at the lower end of the scale. Title I remedial instruction for the coming year, should be tailored to accommodate to a greater extent this subgroup.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 7 who had a MAT reading score of 75 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation, it was calculated that 19 percent of the formerly Title I participants scored above the 75 threshold, and thus will no longer be in need of the remedial service. The remaining 81 percent of the students should still be considered for the supplemental instruction in the coming year.

To summarize, there has been a slight improvement in the reading performance of a few students. But overall, the Title I students in grade 6 have not achieved a mean score beyond the expected level. The area of greatest concern remained with the pupils who had the lowest scores in May of 1980. A few of them (about 4%) seemed to be experiencing more difficulty.

2.9 Project Evaluation - Grade 7 (Public Schools)

2.9.1 Evaluation Design

To evaluate the impact of the Title I Language Experience Program in grade 7, the MAT test data were examined for a stratified sample of 1,626 students. Among these students were, 573 Title I participants. This figure accounted for only 52 percent of the grade 7 Title I enrollment (as of March 1981), but it represented the total number of Title I students in this grade for whom both pretest and post-test scores were available. This group constituted the first stratum of the sample. Then, using a systematic random sampling procedure (1/3), 1,053 students were selected for the comparison group.

Ten percent of the students in this grade who were reported to be Title I participants actually had pretest reading scores above the cut-off point of 75. Similarly, 36 percent of pupils in the original comparison group had pretest scores below that threshold. After appropriate adjustments were made for these inconsistencies, the group used in the regression analysis included 520 Title I participants (treatment subgroup) and 349 regular classroom students (control subgroup).

The summary statistics derived from the regression analysis are reported in Table 2.13. This table presents the pretest and post-test means with their standard deviations; the anticipated post-test mean for the treatment group and the standard error of estimate; the mean gain or average pretest to post-test score change in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual value or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meet the cut-off selection line); and the intercept difference with its index of significance.

TABLE 2.13

Selected Statistical Data for Title I Students (Public Schools)
in the Language Experience Program (LEP)
Metropolitan Achievement Test (MAT), Grade 7

		Treatment Grp. (N=520)	Control Grp. (N=349)
1.	Pretest mean	66.59	85.67
2.	Standard deviation for (1)	6.62	7.85
3.	Post-test mean	72.38	88.84
4.	Standard deviation for (3)	9.36	9.47
5.	Expected post-test mean	74.22	
6.	Standard error of estimate	7.33	
7.	Difference at mean	-1.84	
8.	t value for (7)	1.8*	
9.	Lower intercepts	18.45	23.17
10.	Upper intercepts	79.18	80.66
11.	Difference at intercepts	-1.48	

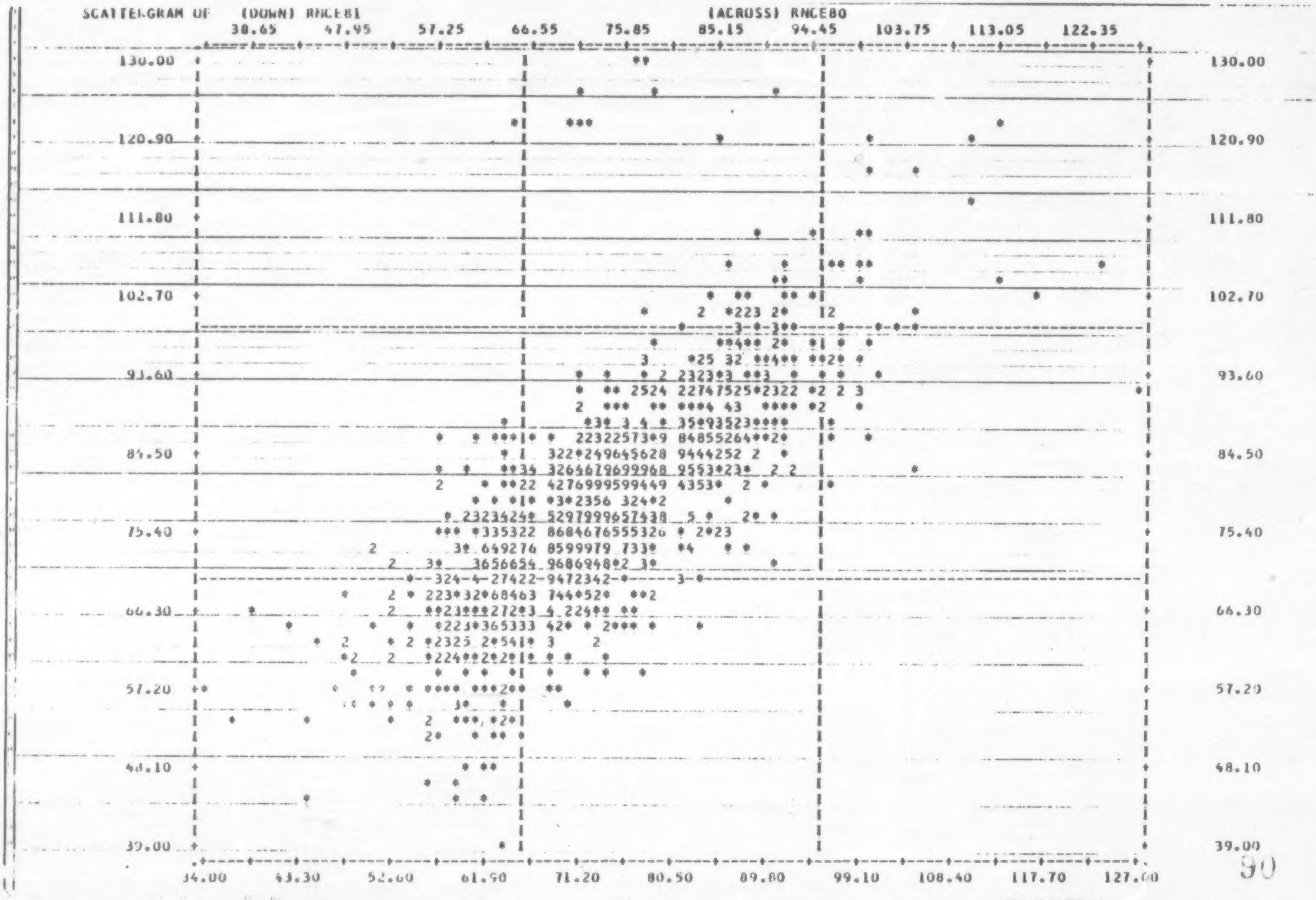
*Significant at the .05 level.

A word of caution is necessary before the meaning of these statistics is discussed. It should be pointed out that the correlation between the 1980 scores and the 1981 scores for students in the control group is only .63. This relatively low correlation was not due to floor or ceiling effects on the test as can be seen in Figure 2.6. Only 4 students obtained a standard score lower than 40, and no more than 3 students scored above 115 on the pretest. In practical terms, the limited pretest and post-test association means two things. First, less than 42 percent of the variation in the 1981 achievement of the control group can be explained from the pretest. Other factors (educational, social or economic) are significantly influencing student performance in this group. Secondly, the mean achievement level predicted for the Title I students from such a coefficient was probably overestimated.

2.9.2 Findings

It was found that the Title I participants had an average reading score of 66.59 in May 1980 when compared to a mean of 85.67 for the regular classroom students. This represented a gap of 19.08 points between the two groups. In the absence of the Title I supplemental instruction, a deficit of at least 15 points could be anticipated between the two groups at the end of 1981. In other words, it was projected that the mean reading score for Title I students on the MAT administered in 1981 would be 74.22 when compared to an average of 88.84 for the control group. The finding indicated that Title I students obtained an average score of 72.38 on the MAT in 1981. Their improvement in reading was therefore less than what could be expected. They fell 1.84 points short of the predicted achievement level. This negative difference is statistically significant at the .05 level and was converted to an NCE score of -2.0. In general, the stated objective of the program was not attained at the seventh grade level.

FIGURE 2.6 DISTRIBUTION OF READING TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 7



This fact does not mean that no other cognitive gains were made. The instructional staff might have concentrated on reducing disparities within the Title I population in this grade level rather than on maximizing scores generally. To obtain additional information in this area, a comparison of the coefficients of variation for the Title I students from one year to the next was made. The respective coefficients of variation are .10 on the pretest (6.62/66.59) and .13 on the post-test (7.85/72.38). Thus, the degree of heterogeneity or variation in that population has increased rather than diminished. The implication of this finding is that some students, possibly those near the cut-off line on the pretest, were able to improve their performance slightly; but those who were initially at the lower end of the scale were experiencing greater difficulty in the reading program. It is evident that the deficit registered by the latter group contributed to maintain the mean below the expected achievement level.

It is now important to obtain confirmation of the slight improvement observed at the top and to see if this gain was sufficient to reverse the previous trend of underachievement among the seventh grade Title I students. An analysis of the anticipated and actual post-test scores at two different points of the score distribution: at the middle point (mean) and at the upper tail (where the regression lines intercept the cut-off mark) was conducted. The expectation was that pupils scoring near the cut-off point would obtain a post-test score of 80.66 in the absence of the Title I remedial services. The actual performance fell 1.48 points short of the projection, but the difference between the two figures was not statistically significant at the .05 level. Thus, the progress realized by a few of the students was insufficient to push the performance indicator beyond the expected level. The overall conclusion was that the underachievement problem is most critical among students at the lower end of the scale. Title I remedial instruction for the coming year should be tailored to accommodate to a greater extent this subgroup.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 8 who had a MAT reading score of 79 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation, it was calculated that 24 percent of the formerly Title I participants scored above the 79 threshold, and thus will no longer be in need of the remedial service. The remaining 76 percent of the students should still be considered for the supplemental instruction in the coming year.

To summarize, there has been a slight improvement in the reading performance of a few students. But overall, the Title I students in grade 7 have not achieved a mean score beyond the expected level. The area of greatest concern remained with the pupils who had the lowest scores in May of 1980. A few of them (about 4%) seemed to be experiencing more difficulty.

2.10 Project Evaluation - Grade 8 (Public Schools)

2.10.1 Evaluation Design

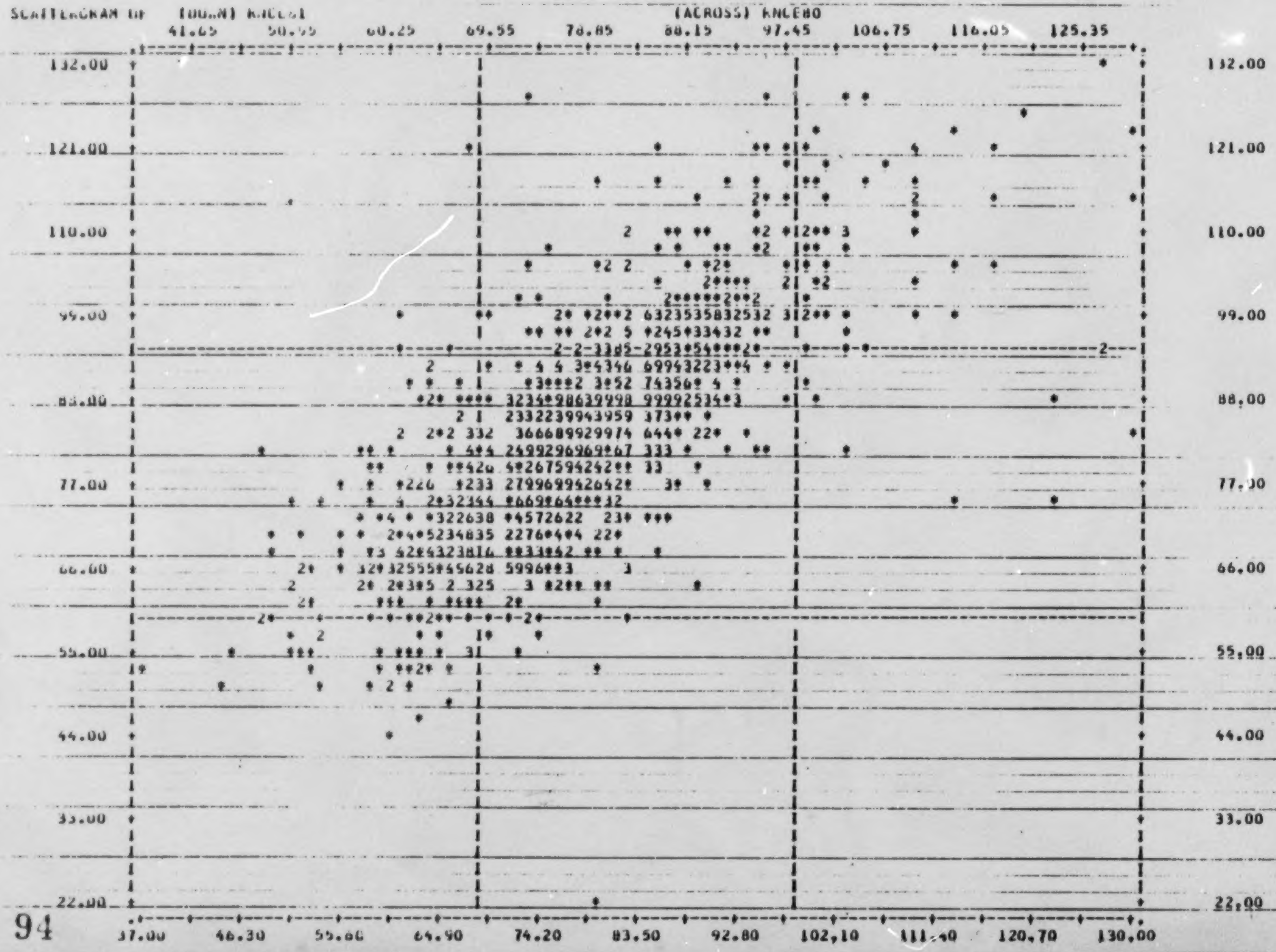
To evaluate the impact of the Title I Language Experience Program in grade 8, the MAT test data were examined for a stratified sample of 1,614 students. Among these students were 405 Title I participants. This figure accounted for only 65 percent of the grade 8 Title I enrollment (as of March 1981), but it represented the total number of Title I students in this grade for whom both pretest and post-test scores were available. This group constituted the first stratum of the sample. Then, using a systematic random sampling procedure (1/3), 1,290 students were selected for the comparison group.

Twelve percent of the students in this grade who were reported to be Title I participants, actually had pretest reading scores above the cut-off point of 79. Similarly, 40 percent of pupils in the original comparison group had pretest scores below that threshold. After appropriate adjustments were made for these inconsistencies, the group used in the regression analysis consisted of 359 Title I participants (treatment subgroup) and 300 regular classroom students (control subgroup).

The summary statistics derived from the regression analysis are reported in Table 2.14. They include the pretest and post-test means with their respective standard deviations; the anticipated post-test mean for the treatment group and the standard error of estimate; the mean gain or average pretest to post-test score change in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual value or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meet the cut-off selection line); and the intercept difference with its index of significance.

A word of caution is necessary before the meaning of these various statistics is discussed. It is important indeed to note that the correlation between the 1980 scores and the 1981 scores for students in the control group is only .51. This relatively low correlation was not due to floor or ceiling effects on the test as can be seen in Figure 2.7. Only 10 students obtained a standard score lower than 50, and no more than 9 students scored above 120 on the pretest. In practical terms, the limited pretest and post-test association means two things. First, less than 27 percent of the variation in the 1981 achievement of the control group can be explained from the pretest. Other factors (educational, social or economic) were influencing student performance

FIGURE 2.7 DISTRIBUTION OF READING TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 8



in this group. On the other hand, the mean achievement level predicted for the Title I students from such a coefficient was probably overestimated.

TABLE 2.14

Selected Statistical Data for Title I Students (Public Schools)
in the Language Experience Program (LEP)
Metropolitan Achievement Test.(MAT), Grade 8

		Treatment Grp. (N=359)	Control Grp. (N=300)
1.	Pretest mean	70.03	90.52
2.	Standard deviation for (1)	7.07	9.94
3.	Post-test mean	73.77	95.25
4.	Standard deviation for (3)	9.32	11.83
5.	Expected post-test mean	82.81	
6.	Standard error of estimate	10.19	
7.	Difference at mean	-9.04	
8.	t value for (7)	7.2*	
9.	Lower intercepts	22.32	40.23
10.	Upper intercepts	80.35	88.25
11.	Difference at intercepts	-7.9	

*Significant at the .05 level.

2.10.2 Findings

It was found that the Title I participants had an average reading score of 70.03 in May 1980 when compared to a mean of 90.52 for the regular classroom students. This represented a gap of 19.49 points between the two groups. In the absence of the Title I supplemental instruction, a deficit of at least 12 points could be anticipated between the two groups at the end of 1981. In other words, it was projected that the mean reading score for Title I students on the MAT administered in 1981 would be 82.81 when compared to an average of 95.25 for the control group. The finding indicated that Title I students obtained an average score of 73.77 on the MAT in 1981. Their improvement in reading was therefore less than what could be expected. They fell short by 9.04 points of the predicted achievement level. This negative difference is statistically significant at the .05 level and was converted to an NCE score of -9.8. In general, the stated objective of the program was not attained at the eighth grade level.

This fact does not mean that no other cognitive gains were made. The instructional staff might have concentrated on reducing disparities within the Title I population at this grade level rather than on maximizing scores generally. To obtain additional information in this area, a comparison of the coefficients of variation for the Title I students from one year to the next was made. The respective coefficients of variation are .10 on the pretest (7.07/70.03) and .12 on the post-test (9.32/73.77). Thus, the degree of heterogeneity was practically the same. There has been no major reduction of the variability of reading scores among the program participants. The implication of this finding was that the insufficient increase in the mean achievement level was not caused by a few pupils whose poor performance would tend to obscure the progress made by another group. The lack of progress or underachievement was registered throughout, regardless of the pretest performance or achievement level.

The area of greatest concern can be further explained through a comparison of the anticipated and actual post-test scores at two different points of the score distribution (at the middle point or mean and at the upper tail where the regression lines intercept the cut-off mark). The expectation was that a pupil scoring near the cut-off point of 79 would obtain a post-test score of 88.25 in the absence of the Title I remedial services. The actual performance (80.35) fell a full 8 points short of that projection. The difference between the two figures was statistically significant at the .05 level and corresponded to a NCE value of -7.9. Since the discrepancy observed at the upper tail of the distribution was smaller than the one obtained at the central point, it was concluded that the underachievement problem is most critical with the initially low scoring students. The instructional strategy for the coming year should be tailored to help this specific subgroup.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 9 who had a MAT reading score of 83 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation, it was calculated that 16 percent of the formerly Title I participants scored above the 83 threshold, and thus will no longer be in need of the remedial service. The remaining 84 percent of the students should still be considered for the supplemental instruction in the coming year.

To summarize, the Title I students in grade 8 have not achieved a reading score above the expected level. The lack of significant progress or underachievement was observable at all levels of the pretest performance. The problem was most critical with the pupils who obtained the lowest reading scores in May 1980.

2.11 Project Evaluation - Grade 9 (Public Schools)

2.11.1 Evaluation Design

To evaluate the impact of the Title I Language Experience Program in grade 9, the Metropolitan Achievement Test (MAT) and the Comprehensive Test of Basic Skills (CTBS) test data were examined for a stratified sample of 1,303 students. Among these students were 483 Title I participants. This figure represented 76 percent of the grade 9 Title I enrollment (as of March 1981) and the total number of students for whom both pretest and post-test scores were available. This group constituted the first stratum of the sample. Using a systematic random sampling procedure (1/3), 820 pupils were selected for the comparison group. The latter sample was finally reduced to 230 subjects, after exclusion of the students who had a score below the cut-off point.

The summary statistics derived from the regression analysis are reported in Table 2.15. This table presents the pretest and the post-test means with their standard deviations; the anticipated post-test mean for the treatment group with the standard error of estimate; the mean gain or average pretest to post-test score change; the statistical significance index for this gain; the values of the lower intercepts (where the regression lines meet the cut-off selection line); and the intercept difference with its index of significance.

The Metropolitan Achievement Test (MAT) was used as the pretest, while the Comprehensive Test of Basic Skills (CTBS) was used as the post-test. (see

Table 2.15). Because the test scales were not the same on these two batteries, the discussion of the mean statistics is developed in both the reported standard scores and in standard deviation units. This second approach made a pretest/post-test comparison possible and more meaningful by cutting mean differences to proportion.

TABLE 2.15

Selected Statistical Data for Title I Students (Public Schools)
in the Language Experience Program (LEP)
Metropolitan Achievement Test (MAT), and
Comprehensive Test of Basic Skills (CTBS), Grade 9

		Treatment Grp. (N=483)	Control Grp. (N=230)
1.	Pretest mean (MAT)	69.43	93.03
2.	Standard deviation for (1)	7.74	7.95
3.	Post-test mean (CTBS)	455.03	530.46
4.	Standard deviation for (3)	54.88	58.87
5.	Expected post-test mean (CTBS)	419.30	
6.	Standard error of estimate	45.4	
7.	Difference at mean	35.73	
8.	t value for (7)	3.7*	
9.	Lower intercepts (CTBS)	226.6	91.67
10.	Upper intercepts (CTBS)	488.0	483.21
11.	Difference at intercepts	4.79	

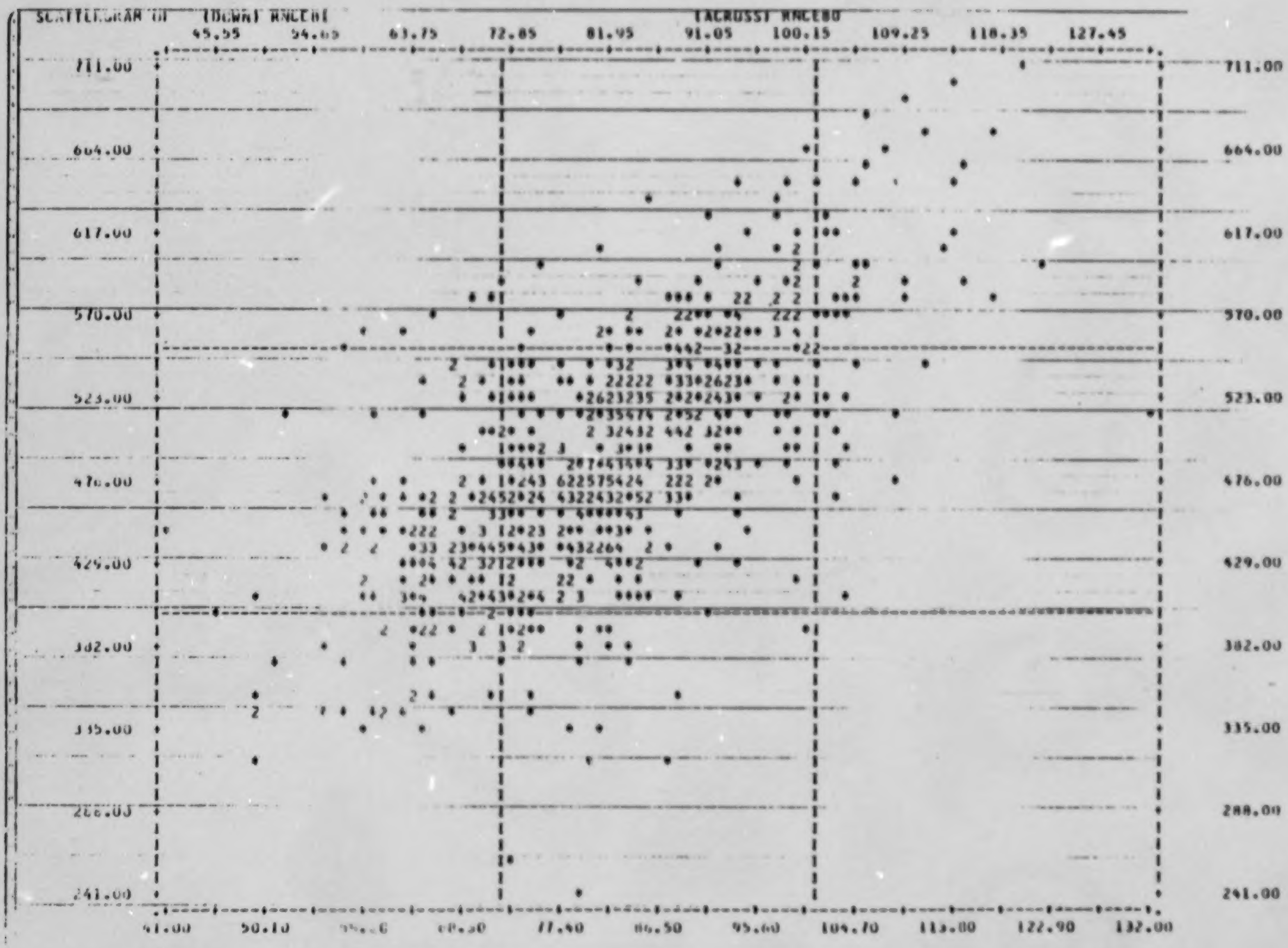
*Significant at the .05 level.

A word of caution is necessary before a full statistical discussion begins. It should be pointed out that the correlation between the 1980 scores and the 1981 scores for students in the control group is .63. This moderate correlation was not due to floor or ceiling effects on the tests as can be seen in Figure 2.8. Only 7 students obtained a standard score lower than 50, and no more than 3 students scored above 120 on the pretest. In practical terms, the limited pretest and post-test association means two things. First, only 42 percent of the variation in the 1981 achievement of the control group can be explained from the pretest. Other factors (educational, social or economic) were in no small measure influencing student performance in this group. Secondly, the mean achievement level predicted for the Title I students from such a coefficient was probably overestimated.

2.11.2 Findings

It was found that the Title I participants had an average reading score of 69.43, in May 1980, when compared to a mean of 93.03 for the regular classroom students. This is equivalent to a difference of almost 3 standard deviation units between the two groups. In the absence of the Title I supplemental instruction, a deficit of 1.89 standard deviation units could be anticipated between the two groups at the end of 1981. In other words, it was projected that the mean reading score for Title I students on the Comprehensive Test of Basic Skills (CTBS) administered in 1981 would be 419.30. The finding indicated that Title I students obtained an average score of 455.03 with a difference of 1.28 standard deviation units between the comparison and control groups. The improvement in reading for Title I students was therefore better than expected. The mean gain of .61 standard deviation units or 35.73 standard score point was statistically significant at the .05 level. In general, the objective of the program was attained for the ninth grade level.

FIGURE 2.8 DISTRIBUTION OF READING TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 9



It is now important to determine whether this change in achievement level is general or localized, i.e., whether the entire subgroup of Title I students were responsive to the remedial instruction in this grade. To obtain additional information in this area, a comparison of the coefficients of variation for the Title I students from one year to the next was made. The respective coefficients of variation were .11 on the pretest (7.74/69.43) and .12 on the post-test (54.88/455.03). Thus, the degree of heterogeneity in the group was practically the same. The implication of this finding is that the progress made in reading achievement is not simply due to a few pupils doing unexpectedly well. All participants in the Title I program at this grade level were sensitive to some extent to Title I remedial instruction.

The actual degree of responsiveness was another matter that is best clarified after a comparison of the gain at two different points of the score distribution (at the middle point or mean and at the upper tail where the regression lines intercept the cut-off mark). The expectation was that a pupil scoring near the cut-off point of 83 would, in the absence of the Title I remedial services, obtain a post-test score of 483.21. This projection came close to the actual performance (488.00). The positive difference of 4.79 between the two figures was not statistically significant. Since there was a net discrepancy between the mean and the upper end of the score distribution, it was concluded that the Title I program has not had an equally strong impact on all the participants. The students with the greatest academic needs were precisely the ones who most benefited from the reading project.

2.12 Project Evaluation - All grades, (Public Schools)

2.12.1 Conclusions and Recommendations

The evaluation of the Title I Language Experience Program (LEP) in grade 2 to 9 was based on a total of 6,898 students. This figure represented the number of pupils in these grades for whom both pretest and post-test scores were available.

Program Effectiveness. In two of the eight grade levels studied, the impact of the Title I project was clearly positive (see Table 2.16). Student in grade 2 and grade 9 achieved an average reading score higher than what could be brought about through the regular classroom instruction alone. This gain is equivalent to more than 3 NCE's (Normal Curve Equivalent score, see Appendix C). In the intermediate grades (3-8), students performance did not reach or go beyond the expected level. The statistically significant deficit ranged from a low of 1.84 point (in standard scores) to a high of 9.04. In that sense, the program objective was not attained in those grades. The gains indicated by the grade 2 and grade 9 pupils were insufficient to reverse the general trend of underachievement.

While it was determined that the Title I objective in some grades was not attained, it was not possible to establish the exact degree of effectiveness or ineffectiveness of the program. Indeed, the correlation between the 1980 reading test and the 1981 reading test was too low to make such a conclusion possible. In grade 2, for example, only 4% of the variation in reading achievement could be explained from the pretest. The estimate for other grades was higher but did not go beyond 40%. As a consequence, the value of the predicted mean score for the Title I students was overestimated, i.e., it was inflated due to some other factors, educational or other. The participating Title I pupils had to show a very large gain for the program impact to appear positive and significant. However, there was a limit placed on the size of the possible gain due to the way in which the cut-off scores were selected. The cut-off score used for Title I selection was sometimes so close to the mean of the total group that it revealed very little difference between the Title I and non-Title I students. For example, in grade 2, the mean for the total group was 38.8 in 1980 and the cut-off point was 35. In grade 5, the mean for the total group was 63.4 and the cut-off was 62. When the two groups are so similar, the same treatment should affect them similarly and a supplemental treatment is likely to bring out little improvement. So the problem of cut-off score choice needs to be weighed more carefully.

Reduction of disparities. The findings reported above should not obscure the fact that, even when the overall result is not satisfactory, some students responded to the Title I program beyond the expected level. Indeed, in grades 4, 5, 6, and 7, it was apparent that a small percentage of students, initially scoring near the cut-off line, were able to significantly increase their score from one year to the next. At the same time, some students who initially scored at the bottom of the scale experienced greater difficulty in reading. For Title I participants in grades 4-7, there was no reduction in disparities among students.

Area of Greatest Need. At all grade levels except grades 3 and 8, the score change was smaller at the cut-off line than at the mean and was not statistically significant. This factor indicated that pupils with stronger academic skills were more responsive (though insufficiently so) to the remedial program than those who were academically weaker. This finding is in line with general expectations, but program administrators may want to go beyond the simple appearance, and check whether the instructional strategy concentrated excessively on the former group to the disadvantage of the

TABLE 2.16

Summary of Test Data, All Grades, Public Schools, Language Experience Program (LEP)

Grade	Mean Pretest	Expected Mean	Mean Post-test	Mean Score Change	NCE Value	t-value	Change at Intercept	NCE Value
2	30.86	45.5	47.12	1.62	3.4	1.8*	.01	0
3	45.82	59.43	53.64	-5.79	-10.2	3.91*	-6.0	- 9.6
4	52.98	63.34	57.88	-5.46	- 8.3	4.3*	-3.42	- 5.9
5	56.55	66.97	62.22	-4.75	- 6.5	4.7*	-3.49	- 5.3
6	60.39	72.99	67.96	-5.03	- 7.0	6.1*	-3.10	- 4.0
7	66.59	74.22	72.38	-1.84	- 1.6	1.8*	-1.48	- 2.2
8	70.03	82.81	73.77	-9.04	- 9.8	7.2*	-7.9	-10.6
9	69.43	419.3	455.03	35.73	7.0	3.7*	-4.79	1.0

*Significant at .05

latter. To do so, it would be necessary to interview some teachers and re-evaluate the materials used for instruction before or at the beginning of the next school year.

Next Year Selection. If the same cut-off scores used in September 1980 are retained for Title I selection in September 1981, it is expected that approximately 76% of the participating students will still need remedial services. In other words, for each grade level, more than one fifth (1/5) of the pupils served this year obtained a score above the cut-off line. This factor indicates that their reading ability was strong enough to permit them to function effectively in the regular classroom with the regular curriculum. In grade 6, the percentage of such successful students was only 19 percent; but in grade 4, it was as high as 30 percent.

2.13 Project Evaluation - All grades, Nonpublic Schools

2.13.1 Evaluation Design[1]

All students in grades 2-8 in the nonpublic schools in Newark took the Metropolitan Achievement Test (MAT) in the Spring of 1980 and again in the Spring of 1981. Students scoring below the standardized cut-off scores listed in Table 2.17 in the Spring of 1980 were designated as needing Title I remedial assistance. The total number of participants with complete pretest and post-test scores for nonpublic schools grades 2-8 was 786. There were 654 students selected because they fell below the cut-off score on the Total Reading subscale of the MAT.

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[1] Refer to Appendix A for additional discussion of the modified Model A evaluation.

The Total Reading subscale score was comprised of the word knowledge, word analysis, and reading subtests for grades 2 and 3. The Total Reading subscale comprised the word knowledge and reading subtests for grade 4-8.

TABLE 2.17

Title I Cut-off Scores Reported for the Total Reading Subscale on the Metropolitan Achievement Test (MAT)

Grade Level	Total Reading Standard Score
2	35
3	51
4	58
5	62
6	67
7	75
8	79

Because the selection for participation in the Title I programs in the Fall of 1980 was based on MAT scores given in the previous Spring, the Spring pretest scores had to be adjusted to reflect scores students would have obtained if they had been retested just before the Title I programs began. The adjusted pretest selection score, therefore, refers to the MAT scores taken in the Spring of 1980 that were adjusted to estimate an average MAT pretest score for Title I participants. This average adjusted pretest selection score was calculated in the following manner:

$$\overline{X}_{p'} = \overline{X}_t - r_{xx}\,(\overline{X}_t - \overline{X}_p)$$

where;

$\overline{X}_{p'}$ = the expected mean score of the Title I group on the pretest if a separate pretest had been administered;

X_p = the mean score of the Title I group on the pretest selection

X_t = the mean score of the total group (from which the Title I students were selected) on the pretest selection. The determination of the number of non-Title I students selected per grade was based on the number of participants in the Title I project in that grade. Individual members in the non-Title I group were then selected by using a table of random numbers; and

r_{xx} = the test-retest reliability for the total group.

Post-test scores on the MAT were obtained, once again, from Title I participants in the Spring of 1981. Therefore, the children were compared with the average adjusted pretest selection score calculated from MAT scores obtained in the Spring of the previous year and the previous grade level. Percentile ranks were converted to Normal Curve Equivalent (NCE) socres according to the conversion table supplied in the User's Guide, ESEA Title I, Evaluation and Reporting System, Revised, 1978.

2.13.2 Findings

Table 2.18 summarizes the results of the modified Model A evaluation for nonpublic Title I participants on the Total Reading subscale of the MAT.

If the guidelines in the User's Guide (see Appendix) were followed to interpret NCE gains, grades 2, 4, and 5 did not attain the Title I instructional objective. The gain scores reported for the remaining grades did not constitute real differences and could be attributed to measurement error.

However, it should be noted that NCE gains are affected by the number of students in each grade. Therefore, the same NCE gain for a larger group may be meaningful whereas the same gain for a smaller group may indicate no real gain at all. For this reason, and because percentile ranks are more easily understood, the results of the modified Model A evaluation are discussed below in terms of percentile ranks for each grade.

TABLE 2.18

Mean Scores on the Total Reading Subscale of the

Metropolitan Achievement Test (MAT)

for Nonpublic School Title I Participants

Grade in School	Number of Participants	Adjusted Average Pretest Score (Spring 1980)		Average Post-test Score (Spring 1981)		Gain Score
		%tile rank	NCE	%tile rank	NCE	NCE
2	44	28	38	16	29	-9
3	118	22	34	24	35	+1
4	110	24	35	14	27	-8
5	1[illegible]	18	31	11	24	-7
6	118	10	23	16	29	+6
7	84	15	28	20	32	+4
8	60	19	32	16	29	-3

Second Grade. In the Spring of 1980, the test scores of 44 children with pretests and post-tests were selected to conduct the Title I evaluation for this grade level. The average Total Reading standard score in the Spring of 1980 for this group of 44 children was 32.25, compared with an adjusted pretest selection score of 33.61 (see Appendix A for explanation). The average adjusted pretest selection Total Reading standard score was at the 28th percentile for children with whom the test was normed. The assumption of this evaluation model is that without Title I participation, these 44 students would be expected again to score at the 28th percentile, thus the score should have been around 48. In terms of percentile ranks, the 44 students went from 28 in the Spring of 1980 to a percentile rank of 16 in the Spring of 1981. This probably represented a significant decrease in student reading scores at this grade level. Therefore, the Title I objective was not attained for the second grade.

Third Grade. There were 118 pretest and post-test scores available for Title I participants in the third grade. Their average adjusted pretest selection standardized score of 46.48 placed them at the 22nd percentile. In the Spring of 1981 when these students were at the third grade level, the average post-test Total Reading score for the Title I students was 53.14 or at the 24th percentile. Thus, the 118 third graders' average Total Reading score gained two percentile points over the score they would have been expected to obtain if they had not participated in the Title I program. The gain of 2 percentile points in all probability did not represent a real increase over the gains that would be expected without Title I assistance. Therefore, the Title I objectives were not attained at this grade level.

Fourth Grade. The pretest taken by the fourth graders was administered in the Spring of 1980. The average adjusted pretest selection Total Reading score for the 90 fourth grade Title I participants was 51.89 or at the 24th percentile. The average post-test Total Reading score taken in the Spring of 1981 was at the 14th percentile. The average post-test standardized score was

56.16. To have the average post-test score equivalent to the percentile rank of the average pretest selection score, the average standardized post-test score for the 110 fourth graders would have to be around 61. Although the loss of 10 percentile points was substantial, the loss could be attributed to measurement error. Regardless, the objectives of Title I were not attained by this group of fourth graders.

Fifth Grade. The Total Reading average adjusted pretest selection score from the 120 fifth grade Title I students was 58.10 or at the 18th percentile. The post-test score taken at the end of the fifth grade indicated an average total reading score at the 11th percentile. To have scored at the 18th percentile on the post-test, the fifth graders would have needed an average standardized post-test Total Reading score of 67 instead of the obtained average score of 62.40. Thus, once again, the Title I objectives were not attained at this grade level.

Sixth Grade. The average adjusted pretest selection Total Reading score was at the 10th percentile for the 118 sixth grade students in Title I. At the end of the sixth grade, the average post-test score increased to the 16th percentile. Although a gain of 6 percentile points from pretest to post-test was realized, the increase could be attributed to measurment error as well as to a significant gain in reading achievement. Therefore, it was concluded that the Title I objectives were not met for this group of sixth graders.

Seventh Grade. The average adjusted pretest selection Total Reading score for the seventh graders in Title I was at the 15th percentile. The average total post-test reading score at the end of the seventh grade for these 84 students was at the 20th percentile. We attributed this gain, once again, to measurment error and concluded that the Title I objectives were not attained at this grade level.

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Eighth Grade. The average adjusted pretest selection Total Reading score at the end of the seventh grade for the 60 eighth graders selected for Title I was 73.69 or at the 19th percentile. At the end of the eighth grade, the average post-test Total Reading score was at the 16th percentile. If no treatment intervention had taken place, these 60 eighth graders would have needed an average standard score of approximately 80 instead of the obtained average score of 78.22. Thus, the Title I objectives were were not attained for this group of eighth graders.

2.14.3 Conclusions and Recommendations

Only three grade levels, (3, 6, and 7) in the Language Experience Program attained the goal of the Title I program. The goal which the Title I participants in the other grades failed to attain was defined in terms of the modified Model A evaluation. That is, on the average, students participating in the program scored on the Total Reading subscale of the MAT where they would be expected to score had they received no special instruction during the school year.

The size of the negative gain for grade 2 is statistically significant and therefore should be investigated as to why the remedial program had a negative influence. However, the expected gain was based on an average score and was only meaningful within the terms of the modidfied Model A evaluation. We have no way of knowing what the gain score of these students would have been without Title I intervention, and the expected gain score does not reflect the gains made by any one particular student.

The instructional effectiveness of the Title I program was only one of the many factors affecting student performance on the MAT (see Table 2.19). Among other factors were a student's past educational history, the out of school environment of the student, the number of absences during the term, and

TABLE 2.19

Means ($\overline{X}$) and Standard Deviations (SD) for Each Reading

Subtest Administered in Nonpublic Schools

		Word Knowledge		Reading Comprehension		Total Reading	
	N	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD
St. Aloysius	1	31.00	0.00	42.00	0.00	38.00	0.00
St. Ann	8	40.88	13.63	39.63	9.12	39.25	9.90
Blessed Sacrament	22	39.50	9.07	39.27	4.82	38.68	5.35
St. Columba	14	36.07	7.79	35.50	6.84	35.14	7.33
St. Lucy	3	55.00	8.64	49.33	2.87	49.33	4.03
St. Mary	11	40.91	10.13	38.18	8.28	38.45	7.96
St. Michael	19	39.32	9.05	36.47	5.04	37.32	5.71
Queen of Angels	2	46.00	1.00	44.00	1.00	44.00	1.00
St. Rollo	2	38.00	4.00	33.50	0.50	35.00	2.00
St. Rose of Lima	8	45.88	6.75	46.75	3.42	45.88	4.20
Total	90	40.32	9.89	39.00	7.00	38.89	7.25

N = Number of pupils with post-test data the general morale of the whole school system. The performance of the students on the MAT was also affected by whether the test measured a representative sample of the intended learning outcomes of the Title I program. The content of the 1970 edition of the MAT that was administered to the nonpublic school participants in the Spring of 1980 and 1981 was developed prior to 1968 when the experimental form of the test was field tested. Therefore, the curriculum materials on which the 1970 edition of the MAT was based are now more than 15 years old. Unless selection of the Title I objectives and teaching materials was done with the item content of the 1970 edition of the MAT taken into consideration, the correspondence between the content of the Title I program and the item content of the test is likely to be different. In effect, it can be argued that what was being taught was not being measured by the MAT. If this is the case, the MAT may not be measuring all the desired outcomes of instruction at the grade levels tested. Therefore, it is our recommendation that the content validity of the MAT subscales be examined in terms of the expectations of the Title I program for the nonpublic school participants.

CHAPTER 3

COMPUTATIONAL SKILLS PROJECT

3.1 Project Narrative

3.1.1 Objectives

As described in the 1980-81 Title I proposal, students in grade 1 through 8 received remedial services in mathematics through the Computational Skills Project (CSP). As a result of participation, first grade students were expected to exhibit better than anticipated growth as measured by the Metropolitan Achievement Test (MAT), Primary I, administered in May 1981. Since students' participation at this grade level was based upon their performance on the Metropolitan Reading Test (MRT), a combined analysis of data for the Language Experience Program and the Computational Skills Program was conducted (This analysis is presented in the Chapter 2, Language Experience Program).

Students in grades 2-8 receiving mathematics remedial services, who participated in the Computation Skills Project (CSP), were expected to exhibit better than anticipated growth in their test scores as shown through an analysis (Model C-1) of pretest and post-test scores on appropriate levels of the Metropolitan Achisvement Test (MAT) administered in May 1980 and May 1981.

3.1.2 Selection of Students

In May 1980, the Metropolitan Reading Test (MRT) was administered to first grade pupils. All those students with a raw score of 60 points or less were considered eligible for the program. The Metropolitan Achievement Test

(MAT) was administered to pupils in grades 2-8. Table 3.1 shows the cut-off scores and the number of selected pupils. Except for grade one students, those selected for participation in the Computational Skills Program (CSP) had to be in the Title I Language Experience Program. Newark test scores indicated that students performed better in mathematics than in reading. It was therefore not unusual to find a larger number of students in the Language Experience Program than in the Computational Skills Program.

TABLE 3.1

Cut-off Scores on Metropolitan Reading Test (MRT)
and Metropolitan Achievement Test (MAT)
and Number of Students Selected for Participation*
in the Computational Skills Project (CSP), May 1980

Grade Level	Test and Level	Cut-off Scores	Number of Selected Pupils
1	MRT	RS60	1,166
2	MAT, Prim I	SS40	643
3	MAT, Prim II	SS56	1,130
4	MAT, Prim II	SS65	1,079
5	MAT, Prim II	SS75	1,296
6	MAT, Inter	SS82	1,208
7	MAT Adv.	SS87	821
8	MAT Adv.	SS90	547
Total			7,915

* Numbers from revised Project Proposal

All students selected for participation in the CS Project must be in the Title I Language Experience Program before they can participate in CSP. Many Title I (CSP) students had pretest scores higher than the designated cutoff score.

3.1.3 Number of Students

The project proposal projected 7,915 students in grades 2-8 would participate in the Computational Skills Program (CSP). As of March 1981, 7,267 students were enrolled in the program. Table 3.2 lists the number of students at each grade level who were identified as eligible and the number of actually participating as the 1980-81 school year began.

TABLE 3.2

Number of Eligible and Actual Participants in the CSP

Grade Level	Eligible	Public* Actual	Nonpublic Actual	Total
1	2,358	1,051	57	1,108
2	2,546	588	28	616
3	2,957	1,064	72	1,136
4	3,065	1,004	70	1,074
5	3,070	1,095	95	1,190
6	3,120	1,131	87	1,218
	2,659	782	73	855
	2,659	552	43	595
Total	22,434	7,267	525	7,792

*Number from revised project proposal.

3.1.4 Instructional Staff

Coordinator. The program was coordinated with other activities by the building Title I Coordinator. The Title I Coordinator for the Computational Skills Project was often the same as that for the Language Experience Program. Hence, the functions of the Coordinator were the same:

a) Developing and implementing the instructional program

b) Planning and conducting inservice training for staff

c) Conducting Needs Assessment

d) Keeping accurate fiscal records

e) Meeting with parents when necessary

f) Monitoring all phases of the program

Project Teacher. The project teacher was responsible for:

a) Prescribing learning activities

b) Working directly with individual and small groups

c) Maintaining individual student progress records

d) Selecting appropriate instructional materials

e) Meeting with parents when necessary

f) Participating in inservice sessions

g) Supervising the teacher aide

Teacher Aides. Under the direction of the project teacher and classroom teacher, teacher aides supplemented and reinforced instruction. They further assisted in the preparation of classroom materials, audio-visual presentations, and in testing students.

3.1.5 Frequency of Instruction/Adult-Pupil Ratio

In May 1981, project teachers and teacher aides were asked to complete a survey asking for frequency of instruction (minutes per week) and adult/pupil ratio. The results indicated that no district-wide pattern existed. There

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were school to school differences, within school differences, and often within grade level differences in schools. Frequency of instruction reportedly ranged from 18 to 300 minutes for teachers and aides. Adult/pupil ratio ranged from a low of 1 to 1 to a high of 1 to 51. This ratio represents the total number of students with whom a teacher or teacher aide was in direct contact both within and across grade levels for the entire school year. The average teacher/pupil ratio for any given period was 1 to 9. The same patterns were reported in both public and nonpublic schools.

3.1.6 Activities

High Intensity Learning Center. The High Intensity Learning Center (HILC) involved the use of a wide variety of selected publisher materials and audio-visual aids, including calculators, tape players and listening stations for visual and auditory discrimination in the various computational skills.

Small Group and Individual Instruction. Mathematics instructions in all grades included the use of manipulative and audio-visual aids. An important part of small group and individualized instruction is the Newark Instructional Management System (NIMS). This new system, which was implemented in May 1980, is basically a diagnostic and prescriptive approach to improve students performance in the basic skills areas. The diagnostic component consists of identifying areas of weaknesses by means of a criterion referenced test. The prescriptive component is designed to use basal and supplemental materials to remediate the individual deficiencies previously identified. In addition to NIMS, the Chisanbop technique is also employed with small groups of young children in order to teach them computational operations by the use of their fingers.

3.1.7 Educational Setting

As can be seen in Table 3.3, most of the instruction in Computational Skills for both public and nonpublic schools was conducted in the regular classroom and pull-out educational settings. Those public schools that have laboratories did use them extensively in grades 2-8. Nonpublic schools did not have laboratories.

TABLE 3.3

Number* of Schools Using Each Educational Setting for

Computational Skills Project

Grade Level	Regular Classroom Public	Regular Classroom Nonpublic	Pull-Out Public	Pull-Out Nonpublic	Laboratory Public	Laboratory Nonpublic
1	29	8	11	0	0	0
2	15	3	29	3	3	0
3	15	5	29	4	7	0
4	7	4	25	5	9	0
5	7	4	21	5	11	0
6	7	3	24	7	8	0
7	5	1	14	6	7	0
8	4	1	7	4	4	0

*Data reported in February 1981 by Title I Project Coordinators

3.2 Project Evaluation - Grade 2 Public School

3.2.1 Evaluation Design

To evaluate the impact of the Title I Project in grade 2, the MAT test scores in mathematics were examined for the same stratified sample of 995 pupils used for the reading evaluation. The record showed that 678 of them were neither Title I nor State Compensatory Education (SCE) participants. This group formed the basic pool for the control group. Further analysis revealed that 20% of the pupils in this group actually scored below the math cutoff line of 40, but were above the threshold in reading. On the other hand, 71 subjects were students participating in the Title I reading program but not in need of mathematical remedial support. The remaining 246 pupils scoring below the cutoff line of 35 in reading and 40 in math were considered for the treatment group. This figure was a conservative estimate (42%) of the grade 2 Title I enrollment (as of March 1981); but it represented the total number of pupils in this grade for whom all four scores were available. After the necessary adjustments, the sample used for the regression analysis included 185 Title I participants (treatment group) and 263 regular classroom students (control group).

The summary statistics derived from the regression analysis are presented in Table 3.4. This table reports the pretest means, the post-test means, and their respective standard deviations; the anticipated post-test mean for the treatment group, and the standard error of estimate; the mean gain or average pretest to post-test score change, in both standard scores and NCE's (Normal Curve Equivalents); the statistical significance index for this residual score or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meet the cutoff selection line); and the intercept difference and its statistical significance index.

TABLE 3.4

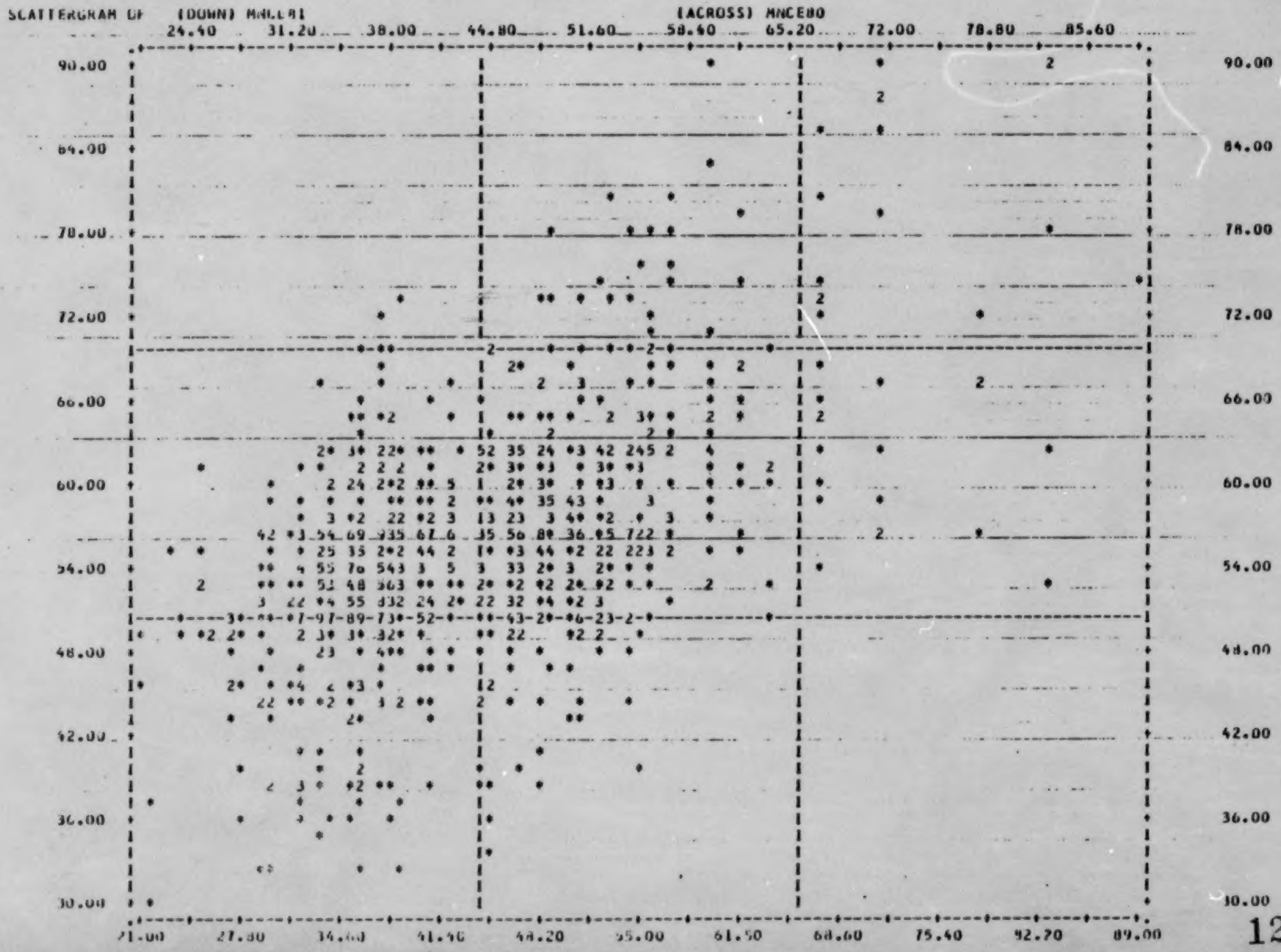
Selected Statistical Data for Title I Students (Public Schools) in the Computational Skills Project (CSP) Grade 2

		Treatment Grp (N=185)	Control Grp (N=263)
1.	Pretest mean	34.23	51.58
2.	Standard deviation for (1)	3.67	10.31
3.	Post-test mean	51.71	60.07
4.	Standard deviation for (3)	6.02	9.10
5.	Expected post-test mean	51.91	
6.	Standard error of estimate	7.72	
7.	Difference at mean	- .2	
8.	t value for (7)	.3	
9.	Lower intercepts	43.24	35.81
10.	Upper intercepts	53.13	54.62
11.	Difference at intercepts	-1.49	

* Significant at the .05 level

It is known that achievement in mathematics is very sensitive (more so than reading, that is) to classroom instruction. However, the correlation between the 1980 scores and the 1981 scores for the control group students is .53. This rather limited correlation is not due to floor or ceiling effects, as can be seen in Figure 3.1. Only 15 students have obtained a score below 25, and no more than 10 have scored above 75. The value of the coefficient is statistically significant. However, it should be remembered that less than 30% of the variation in the 1981 achievement of the control group

FIGURE 3.1 DISTRIBUTION OF MATH TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 2



can be explained from the pretest. Other factors, not all of a strictly instructional nature, are at work, modifying student performance in this group. The consequences for the Title I project is that the predicted mean for the participating pupils is probably inflated. In order for the program to demonstrate effectiveness, a rather substantial gain has to be achieved.

3.2.2 Findings

It was found that the Title I participants at this grade level had an average math score of 34.23 in May 1980 as compared to a mean of 51.58 for the regular classroom students. This represented a 17.35 point gap between the two subgroups. In the absence of the Title I supplemental instruction, a deficit of at least 8 points could still be expected between them. In specific numbers, this indicated that the 1981 MAT average for the Title I pupils was expected to be 51.91, as compared to a mean of 60.01 for the comparison group. As it turned out, the Title I students obtained an average score of 51.71. The difference is only .20. It is equivalent to a NCE value of 0 which is not statistically significant. Since the improvement does not go beyond the expected level, the stated objective of the program was not met in this grade.

This fact does not mean no improvement has occurred in student performance. It may have been too small to affect the mean. There also exists the possibility of an interaction between the instructional program and student ability, the initially stronger pupils reacting differently than the ones with low pretest scores. To obtain some evidence on the latter point, the coefficient of variation was calculated for the Title I population, from one year to the next. The variation coefficient is equal to .11 on the pretest (3.7/34.2) and to .12 on the post-test (6.0/51.7). The difference is only .01, indicating that the degree of homogeneity is practically the same. There is no differential adjustment to the instuctional program among students. The underachievement trend is typical of the entire Title I population in grade 2.

The area of utmost concern can be further explained by comparing the anticipated and actual scores at the different points of the score distribution, the middle point (mean) and the upper tail (where the regression lines intercept the cut-off mark). The expectation was that a pupil scoring near the cut-off point of 40 would, in the absence of the Title I supplemental instruction, obtain a post-test score of 54.6. The actual performance (53.1) comes within 2 points of that projection. The difference between the two figures is not statistically significant at the .05 level. However, since this discrepancy obtained near the upper tail of the distribution is larger than the one observed at the mean, it was concluded that the lack of progress or underachievement tends to be more critical with the initially 'more able' students.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 3 who had a MAT math score of 56 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation, it is calculated that approximately 24% of the formerly Title I participants scored above the 56 threshold, and thus will no longer be in need of the remedial service. The remaining 76% of the students remain in need of supplemental instruction in the coming academic year.

3.3 Project Evaluation - Grade 3 Public School

3.3.1 Evaluation Design

To evaluate the impact of the Title I Project in grade 2, the MAT test scores in mathematics were examined for the same stratified sample of 1,298 pupils used for the reading evaluation. The record showed that 594 of them were neither Title I nor SCE participants, so they formed the basic pool for the control group. Further analysis revealed that 22% of the pupils in this group actually scored below the math cutoff line of 56, but were above the threshold in reading. On the other hand, 202 subjects were students participating in the Title I reading program but not in need of mathematical remedial support. The remaining 502 pupils scoring below the cutoff line of 51 in reading and 56 in math were considered for the treatment group. This figure was a conservative estimate (42%) of the grade 3 Title I enrollment (as of March 1981); but it represented the total number of pupils in this grade for whom all four scores were available. After the necessary adjustments, the sample used for the regression analysis included 451 Title I participants (treatment group) and 234 regular classroom students (control group).

The summary statistics derived from the regression analysis are presented in Table 3.5. This table reports the pretest means, the post-test means, and their respective standard deviations; the anticipated post-test mean for the treatment group, and the standard error of estimate; the mean gain or average pretest to post-test score change, in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual score or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meet the cutoff selection line); and the intercept difference and its statistical significance index.

It is known that achievement in mathematics is very sensitive (more so than reading, that is) to classroom instruction. However, the correlation between the 1980 scores and the 1981 scores for the control group students is .56. This rather limited correlation is not due to floor or ceiling effects as can be seen in Figure 3.2. Only 15 students have obtained a score below 35,

TABLE 3.5

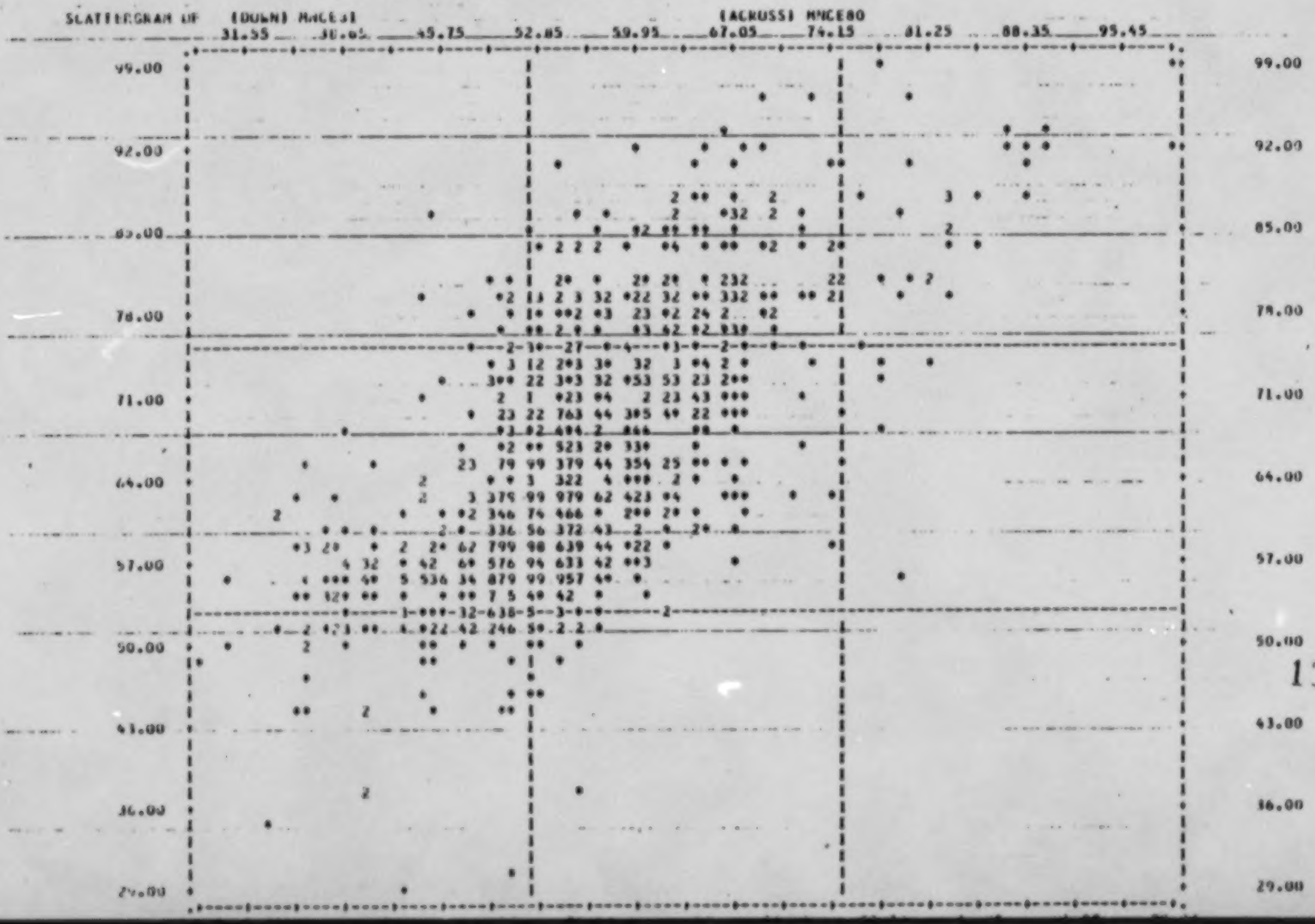
Selected Statistical Data for Title I Students (Public Schools) in the Computational Skills Project (CSP) Grade 3

		Treatment Grp (N=451)	Control Grp (N=234)
1.	Pre-test mean	50.07	65.88
2.	Standard deviation for (1)	5.08	8.98
3.	Post-test mean	59.57	75.13
4.	Standard deviation for (3)	7.63	9.95
5.	Expected post-test mean	65.24	
6.	Standard error of estimate	8.22	
7.	Difference at mean	-5.67	
8.	t value for (7)	3.67*	
9.	Lower intercepts	30.3	33.89
10.	Upper intercepts	63.03	68.95
11.	Difference at intercepts	-5.92	

* Significant at the .05 level

and no more than 9 have scored above 85. The value of the coefficient is statistically significant. However, it should be remembered that less than 32% of the variation in the 1981 achievement of the control group can be explained from the pretest. Other factors, not all of a strictly instructional nature, are at work, modifying student performance in this group. The consequences for the Title I project is that the predicted mean for the participating pupils is probably inflated. In order for the program to demonstrate effectiveness, a rather substantial gain has to be achieved.

FIGURE 3.2 DISTRIBUTION OF MATH TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 3



3.3.2 Findings

It was found that the Title I participants at this grade level had an average math score of 50.07 in May 1980 as compared to a mean of 65.88 for the control group. This represented a 15.81 point gap between the two groups. In the absence of the Title I supplemental instruction, a deficit of at least 10 points could still be expected between them. In specific numbers, this indicated that the 1981 MAT average for the Title I pupils was expected to be 65.24 as compared to a mean of 75.13 for the comparison group. As it turned out, the Title I students obtained an average score of 59.57. The yield, thus, is a negative 5.67 which is equivalent to a NCE value of -9.4. At the .05 alpha level, the calculated t-value is statistically significant. Since the improvement does not go beyond the expected level, the stated objective of the program was not met in this grade.

This fact does not mean no improvement has occured in student performance. The improvement may have been too small to affect the mean. There exists also the possibility of an interaction between the instructional program and student ability, the initially stronger pupils reacting differently than the ones with low pretest scores. To obtain some evidence on the latter point, the coefficient of variation was calculated for the Title I population from one year to the next. The variation coefficient is equal to .10 on the pretest (5.08/50.07) and to .12 on the post-test (7.63/59.57). The difference is only .02, indicating that the degree of homogeneity is practically the same. There is no differential adjustment to the instuctional program among students. The underachievement trend is typical of the entire Title I population in grade 3.

The area of greatest concern can be further explained by comparing the anticipated and actual scores at the different points of the score distribution, the middle point (mean) and the upper tail (where the regression lines intercept the cut-off mark). The expectation was that a pupil scoring near the cut-off point of 56 would in the absence of the Title supplemental instruction obtain a post-test score of 68.95. The actual performance (63.03) comes within 6 points (5.92 exactly) of that projection. This is a -10.3 deficit in NCE value. The calculated t-value does reach significance at the .05 alpha level. However, the score discrepancy observed near the upper tail of the distribution is comparable to the one observed at the mean. This finding confirms that regardless of their pretest performance level, all the pupils in grade 3 are experiencing equal difficulty with the math program.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 4 who had a MAT math score of 65 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation, it is calculated that 24% of the formerly Title I participants scored above the 65 threshold, and thus will no longer be in need of the remedial service. The remaining 76% of the students remain in need of supplemental instruction in the coming academic year.

3.4 Project Evaluation - Grade 4 Public School

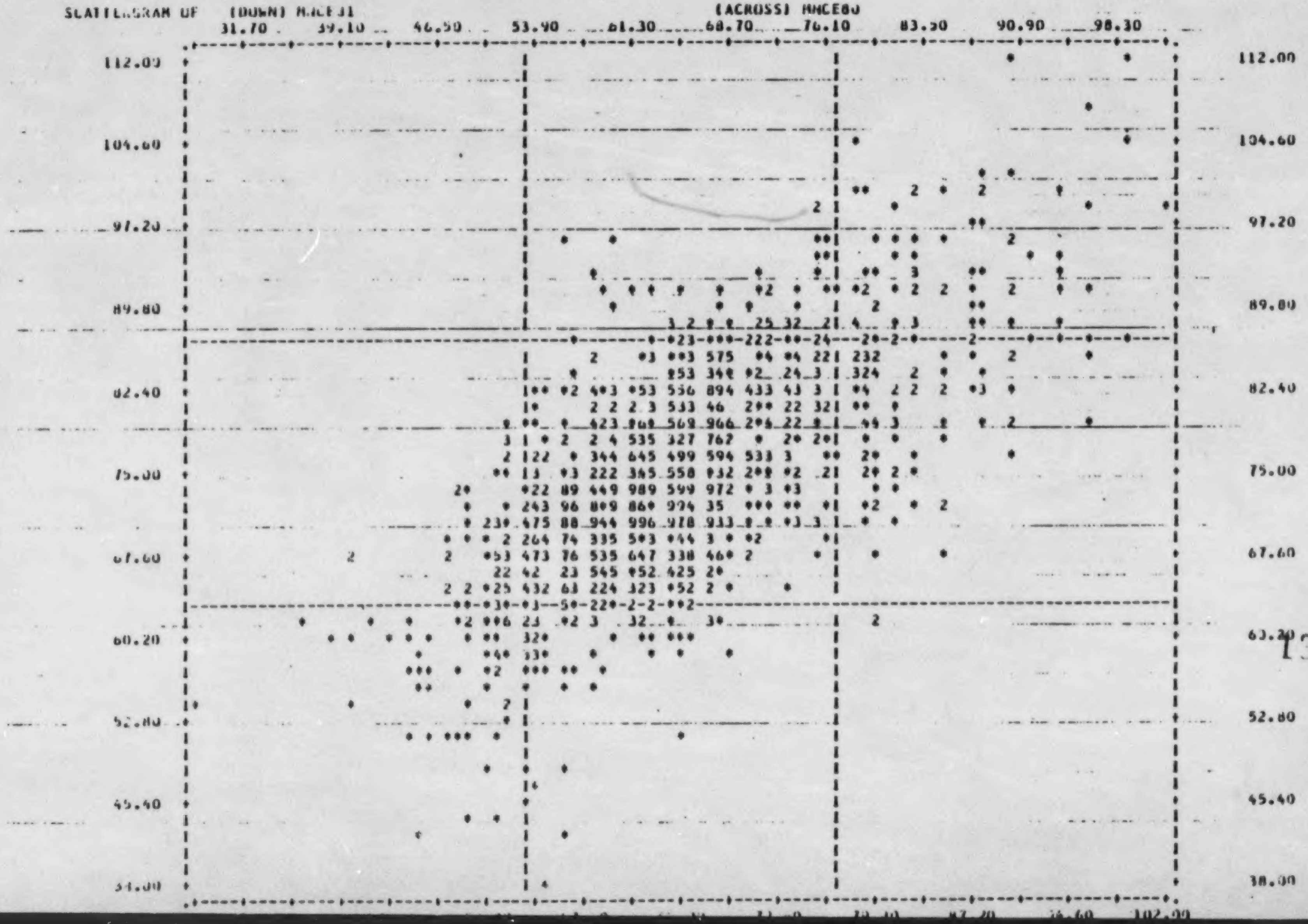
3.4.1 Evaluation Design

To evaluate the impact of the Title I Project in grade 4, the MAT test scores in mathematics were examined for the same stratified sample of 1,520 pupils used for the reading evaluation. The record showed that 722 of them were neither Title I nor State Compensatory Education (SCE) participants, so they formed the basic pool for the control group. Further analysis revealed that 11% of the pupils in this group actually scored below the math cut-off line, but were above the threshold in reading. On the other hand, 240 subjects were students participating in the Title I reading program but not in need of mathematical remedial support. The remaining 558 pupils scoring below the cut-off line of 58 in reading and 65 in math were considered for the control group. This figure was a conservative estimate (52%) of the grade 4 Title I enrollment (as of March 1981); but it represented the total number of pupils in this grade for whom all four scores were available. After the necessary adjustments, the sample used for the regression analysis included 459 Title I participants (treatment group) and 227 regular classroom students (control group).

Initially, the data were examined for possible distortions. One of the hazards that could cloud interpretation of the findings has to do with floor and ceiling effects. From an inspection of the joint score distribution (see Figure 3.3), it was found that only 9 students have obtained a score below 42 and no more than 10 have scored above 95. This picture may look similar to the one obtained in the early grades. However, there is, one major difference: the correlation between the 1980 scores and the 1981 scores is a solid .63. This coefficient helps account for no less than 40% of the variation in the 1981 achievement of the control group. The implication of this finding for the Title I program is that the anticipated mean for the participating pupils can be quite accurately estimated. This makes the criterion for success more realistic.

The summary statistics derived from the regression analysis are reported in Table 3.6. This table reports the pretest means, the post-test means, and their respective standard deviations; the anticipated post-test mean for the

FIGURE 3.3 DISTRIBUTION OF MATH TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 4



treatment group, and the standard error of estimate; the mean gain or average pretest to post-test score change, in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual score or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meet the cutoff selection line); and the intercept difference and its statistical significance index.

3.4.2 Findings

It was found that the Title I participants had an average math score of 57.30 in May 1980 as compared to a mean of 76.53 for the control group. This represented a 19.2 point gap between the two subgroups. In the absence of the Title I supplemental instruction, a deficit of at least 11 points could still be expected between them. In specific numbers, this indicated that the 1981 MAT average for the Title I pupils was expected to be 72.75, as compared to a mean of 83.97 for the comparison group. As it turned out, the Title I students obtained an average score of 69.43. The yield is a negative 3.32 which is equivalent to a NCE value of -7.4. At the .05 alpha level, the calculated t-value is statistically significant. Since the improvement does not go beyond the expected level, the stated objective of the program has not been met in this grade.

This fact does not mean no improvement has occured in student performance. The improvement may have been too small to affect the mean. There exists also the possibility of an interaction between the instructional program and student's ability, the initially stronger pupils reacting differently than the ones with low pretest scores. To obtain some evidence on the latter point, the coefficient of variation was calculated for the Title I population from one year to the next. The variation coefficient is equal to .09 on the pretest (5.4/57.3) and to .10 on the post-test (7.6/69.4). The difference is

TABLE 3.6

Selected Statistical Data for Title I Students (Public Schools) in the Computational Skills Project (CSP) Grade 4

		Treatment Grp (N=459)	Control Grp (N=227)
1.	Pretest mean	57.3	76.53
2.	Standard deviation for (1)	5.36	9.65
3.	Post-test mean	69.43	83.97
4.	Standard deviation for (3)	7.62	8.85
5.	Expected post-test mean	72.75	
6.	Standard error of estimate	6.85	
7.	Difference at mean	-3.32	
8.	t value for (7)	3.4*	
9.	Lower intercepts	26.63	39.32
10.	Upper intercepts	75.17	77.24
11.	Difference at intercepts	-2.07	

* Significant at the .05 level

only .01, indicating that the degree of homogeneity is practically the same. There is no differential adjustment to the instuctional program among students The underachievement trend is typical of the entire Title I population in grade 4.

The area of greatest concern can be further explained by comparing the anticipated and actual scores at the different points of the score distribution, the middle point (mean) and the upper tail (where the regression lines intercept the cutoff mark). The expectation was that a pupil scoring near the cut-off point of 65 would, in the absence of the Title supplemental instruction, obtain a post-test score of 77.24 The actual performance (75.17) comes within 2.04 points of that projection. This is a -2.3 deficit in NCE value. The calculated t-value does reach significance at the .05 alpha level. However, since the score discrepancy observed near the upper tail of the distribution is comparable to the one observed at the mean, it was concluded that the underachievement problem tends to be more serious with the initially low-scoring students.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 5 who had a MAT math score of 75 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation it is calculated that 23% of the formerly Title I participants scored above the 75 threshold, and thus will no longer be in need of the remedial service. The remaining 77% of the students remain in need of supplemental instruction in the coming academic year.

3.5 Project Evaluation - Grade 5 Public School

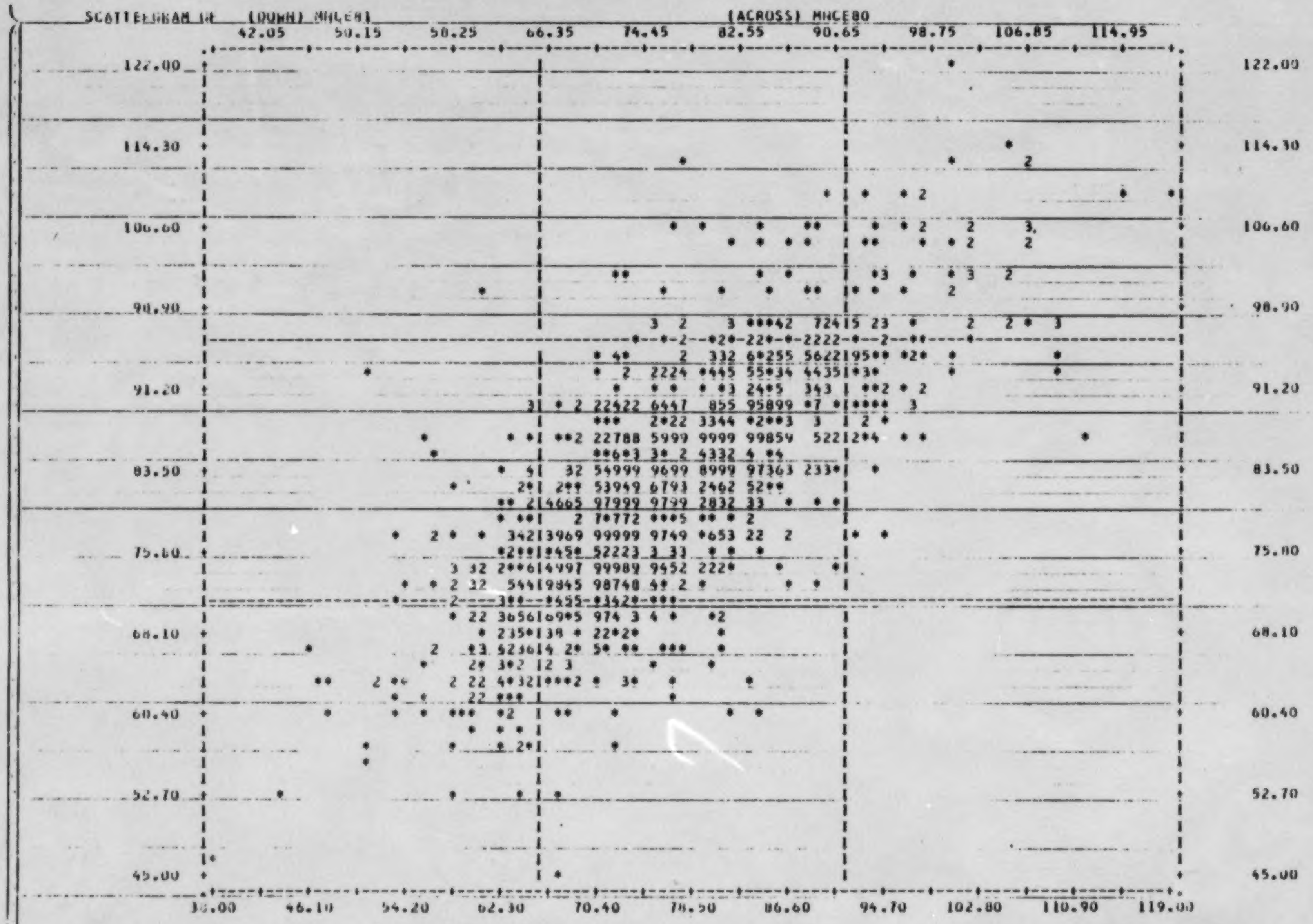
3.5.1 Evaluation Design

To evaluate the impact of the Title I Project in grade 5, the MAT test scores in mathematics were examined for the same stratified sample of 1,944 pupils used for the reading evaluation. The record showed that 1,090 of them were neither Title I nor State Compensatory Education (SCE) participants, so they formed the basic pool for the control group. Further analysis revealed that 14% of the pupils in this group actually scored below the math cut-off line, but were above the threshold in reading. On the other hand, 223 subjects were students participating in the Title I reading program but not in need of mathematical remedial support. The remaining 631 pupils scoring below the cut-off line of 62 in reading and 75 in math were considered for the control group. This figure was a conservative estimate (49%) of the grade 5 Title I enrollment (as of March 1981); but it represented the total number of pupils in this grade for whom all four scores were available. After the necessary adjustments, the sample used for the regression analysis included 530 Title I participants (treatment group) and 436 regular classroom students (control group).

Initially, the data were examined for possible distortions. One of the hazards that could cloud interpretation of the findings has to do with floor and/or ceiling effects. From an inspection of the joint score distribution (see Figure 3.4), it was found that only 6 students have obtained a score below 46 and no more than 16 have scored above 105. This picture may look similar to the one obtained in the early grades. However, there is, one major difference: the correlation between the 1980 scores and the 1981 scores is a solid .69. This coefficient helps account for no less than 48% of the variation in the 1981 achievement of the control group. The implication of this finding for the Title I program is that the anticipated mean for the participating pupils can be quite accurately estimated. This makes the criterion for success more realistic.

The summary statistics derived from the regression analysis are reported in Table 3.7. This table reports the pretest means, the post-test means, and their respective standard deviations; the anticipated post-test mean for the treatment group, and the standard error of estimate; the mean gain or average pretest to post-test score change, in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual score

FIGURE 3.4 DISTRIBUTION OF MATH TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 5



or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meet the cutoff selection line); and the intercept difference and its statistical significance index.

3.5.2 Findings

It was found that the Title I participants had an average math score of 68.42 in May 1980 as compared to a mean of 86.13 for the control group. This represented a 17.71-point gap between the two subgroups. In the absence of the Title I supplemental instruction, a deficit of at least 11 points could still be expected between them. In specific numbers, this indicated that the 1981 MAT average for the Title I pupils was expected to be 77.67 as compared to a mean of 89.40 for the comparison group. As it turned out, the Title I students obtained an average score of 75.40. The yield is a negative 2.27 which is equivalent to a NCE value of -7.0. At the .05 alpha level, the calculated t-value is statistically significant. Since the improvement does not go beyond the expected level, the stated objective of the program has not been met in this grade.

This fact does not mean no improvement has occured in student performance. The improvement may have been too small to affect the mean. There exists also the possibility of an interaction between the instructional program and student's ability, the initially stronger pupils reacting differently than the ones with low pretest scores. To obtain some evidence on the latter point, the coefficient of variation was calculated for the Title I population from one year to the next. The variation coefficient is equal to .08 on the pretest (5.3/68.4) and to .09 on the post-test (7.2/75.4). The difference is only .01, indicating that the degree of homogeneity is practically the same. There is no differential adjustment to the instuctional program among students The underachievement trend is typical of the entire Title I population in grade 5.

TABLE 3.7

Selected Statistical Data for Title I Students (Public Schools) in the Computational Skills Project (CSP) Grade 5

		Treatment Grp (N=530)	Control Grp (N=436)
1.	Pre-test mean	68.42	86.13
2.	Standard deviation for (1)	5.31	8.39
3.	Post-test mean	75.4	89.4
4.	Standard deviation for (3)	7.17	8.24
5.	Expected post-test mean	77.67	
6.	Standard error of estimate	5.95	
7.	Difference at mean	-2.27	
8.	t value for (7)	3.3*	
9.	Lower intercepts	26.64	31.18
10.	Upper intercepts	80.08	82.03
11.	Difference at intercepts	-1.95	

* Significant at the .05 level

The area of greatest concern can be further explained by comparing the anticipated and actual scores at the different points of the score distribution, the middle point (mean) and the upper tail (where the regression lines intercept the cut-off mark). The expectation was that a pupil scoring near the cut-off point of 75 would, in the absence of the Title supplemental instruction obtain a post-test score of 82.03. The actual performance (80.08) comes within 1.95 points of that projection. This is a -4.2 deficit in NCE value. The calculated t-value does reach significance at the .05 alpha level.

However, since the score discrepancy observed near the upper tail of the distribution is comparable to the one observed at the mean, it was concluded that the underachievement problem tends to be more serious with the initially low-scoring students.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 6 who had a MAT math score of 82 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation it is calculated that approximately 18% of the formerly Title I participants scored above the 82 threshold, and thus will no longer be in need of the remedial support. The remaining 82% of the students remain in need of supplemental instruction in the coming academic year.

3.6 Project Evaluation - Grade 6 Public School

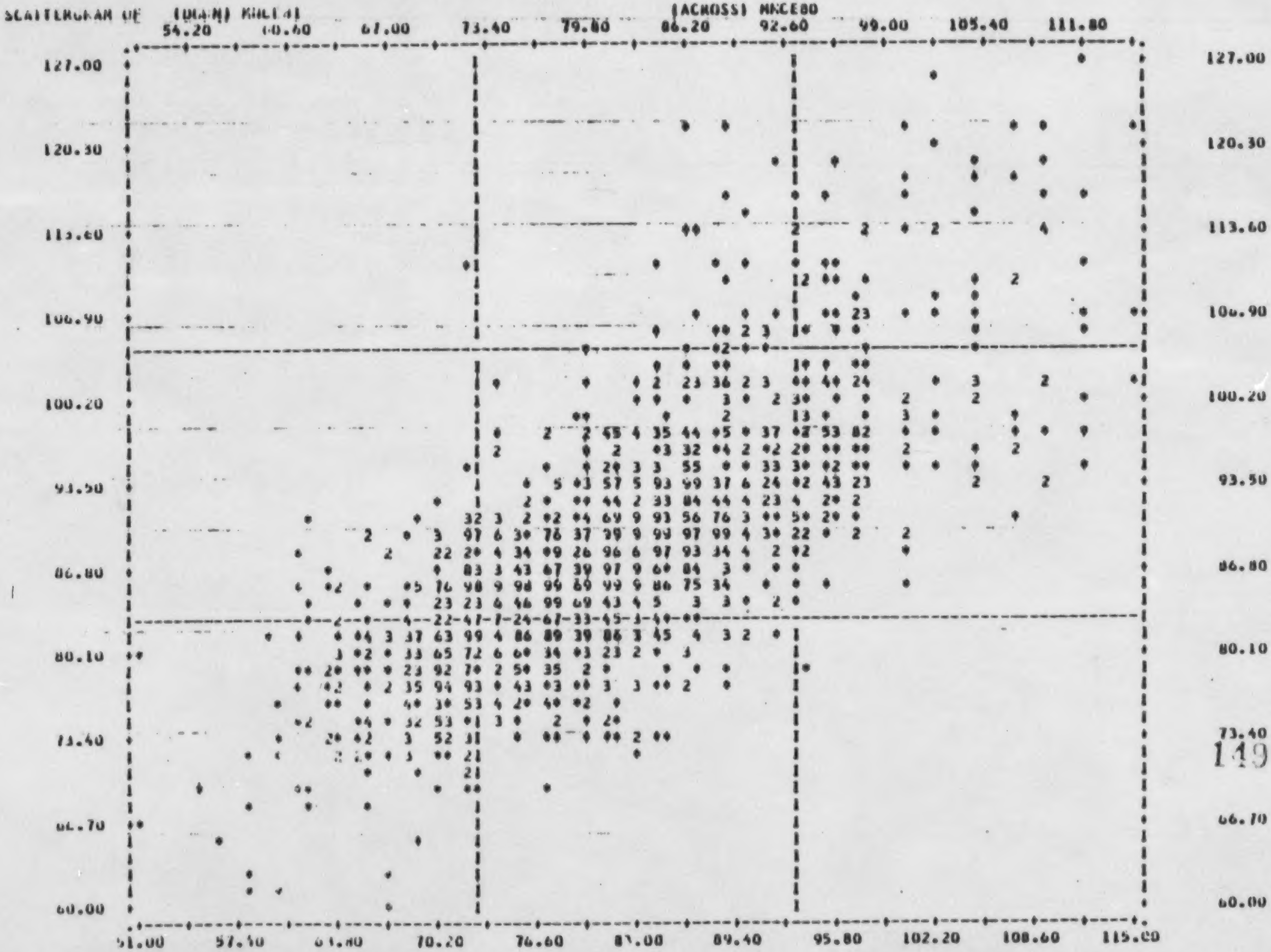
3.6.1 Evaluation Design

To evaluate the impact of the Title I Project in grade 6, the MAT test scores in mathematics were examined for the same stratified sample of 1,861 pupils used for the reading evaluation. The record showed that 1,158 of them were neither Title I nor State Compensatory Education (SCE) participants, so they formed the basic pool for the control group. Further analysis revealed that 30% of the pupils in this group actually scored below the math cut-off line, but were above the threshold in reading. On the other hand, 206 subjects were students participating in the Title I reading program but not in need of mathematical remedial support. The remaining 497 pupils scoring below the cut-off line of 67 in reading and 82 in math were considered for the control group. This figure was a conservative estimate (44%) of the grade 6 Title I enrollment (as of March 1981); but it represented the total number of pupils in this grade for whom all four scores were available. After the necessary adjustments, the sample used for the regression analysis included 442 Title I participants (treatment group) and 430 regular classroom students (control group).

Initially, the data were examined for possible distortions. One of the hazards that could cloud interpretation of the findings has to do with floor and/or ceiling effects. From an inspection of the joint score distribution (see Figure 3.5), it was found that only 4 students have obtained a score below 57 and no more than 23 have scored above 108. This picture may look similar to the one obtained in the early grades. However, there is, one major difference: the correlation between the 1980 scores and the 1981 scores is a solid .63. This coefficient helps account for no less than 40% of the variation in the 1981 achievement of the control group. The implication of this finding for the Title I program is that the anticipated mean for the participating pupils can be quite accurately estimated. This makes the criterion for success more realistic.

The summary statistics derived from the regression analysis are reported in Table 3.8. This table reports the pretest means, the post-test means, and their respective standard deviations; the anticipated post-test mean for the treatment group, and the standard error of estimate; the mean gain or average pretest to post-test score change, in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual score or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meet the cutoff selection line); and the intercept difference and its statistical significance index.

FIGURE 3.5 DISTRIBUTION OF MATH TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 6



3.6.2 Findings

It was found that the Title I participants had an average math score of 73.80 in May 1980 as compared to a mean of 91.83 for the control group. This represented a 18.03 point gap between the two subgroups. In the absence of the Title I supplemental instruction, a deficit of at least 13 points could still be expected between them. In specific numbers, this indicated that the 1981 MAT average for the Title I pupils was expected to be 83.27, as compared to a mean of 96.18 for the comparison group. As it turned out, the Title I students obtained an average score of 82.38. The yield is a negative .89 which is equivalent to a NCE value of -1.2. At the .05 level, the calculated t-value is statistically significant. Since the improvement does not go beyond the expected level, the stated objective of the program has not been met in this grade.

This fact does not mean no improvement has taken place in student performance. The improvement may have been too small to affect the mean. There exists also the possibility of an interaction between the instructional program and student's ability, the initially stronger pupils reacting differently than the ones with low pre-test scores. To obtain some evidence on the latter point, the coefficient of variation was calculated for the Title I population from one year to the next. The variation coefficient is equal to .08 on the pretest (5.66/73.80) and to .06 on the post-test (5.71/82.38). Although the change is small, it is worth noting that the homogeneity is greater at the end of 1981 than it was in May 1980. From this, it can be inferred that the initially low-scoring students have been able to moderately improve their performance, while pupils originally scoring near the cutoff line have not been so successful.

TABLE 3.8

Selected Statistical Data for Title I Students (Public Schools) in the Computational Skills Project (CSP) Grade 6

		Treatment Grp (N=442)	Control Grp (N=430)
1.	Pretest mean	73.8	91.83
2.	Standard deviation for (1)	5.66	8.05
3.	Post-test mean	82.38	96.18
4.	Standard deviation for (3)	5.71	9.14
5.	Expected post-test mean	83.27	
6.	Standard error of estimate	7.1	
7.	Difference at mean	- .89	
8.	t value for (7)	1.2	
9.	Lower intercepts	44.81	30.37
10.	Upper intercepts	86.55	89.14
11.	Difference at intercepts	-2.59	

* Significant at the .05 level

It is now important to obtain comfirmation of this trend by comparing the anticipated and actual post-test scores at two different points of the score distribution, the middle point (mean) and the upper tail (where the regression lines intercept the cut-off mark). The expectation was that a pupil scoring near the cut-off point of 82 would, in the absence of the Title I supplemental instruction, obtain a post-test score of 89.14. The actual performance (86.55) comes within 2.6 points of that projection. This is a -3.2 NCE deficit. The calculated t-value doesn't reach significance at the

.05 alpha level. However, the score discrepancy observed near the upper tail of the distribution is comparable to the one observed at the mean, it was concluded that the underachievement problem tends to be more serious with the initially low-scoring students.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 7 who had a MAT math score of 87 or less should be considered for remedial instruction. Based on the actual post-test mean and standard deviation it is calculated that 21% of the formerly Title I participants scored above the 87 threshold, and thus will no longer be in need of the remedial service. The remaining 79% of the students remain in need of supplemental instruction in the coming academic year.

3.7 Project Evaluation - Grade 7 Public School

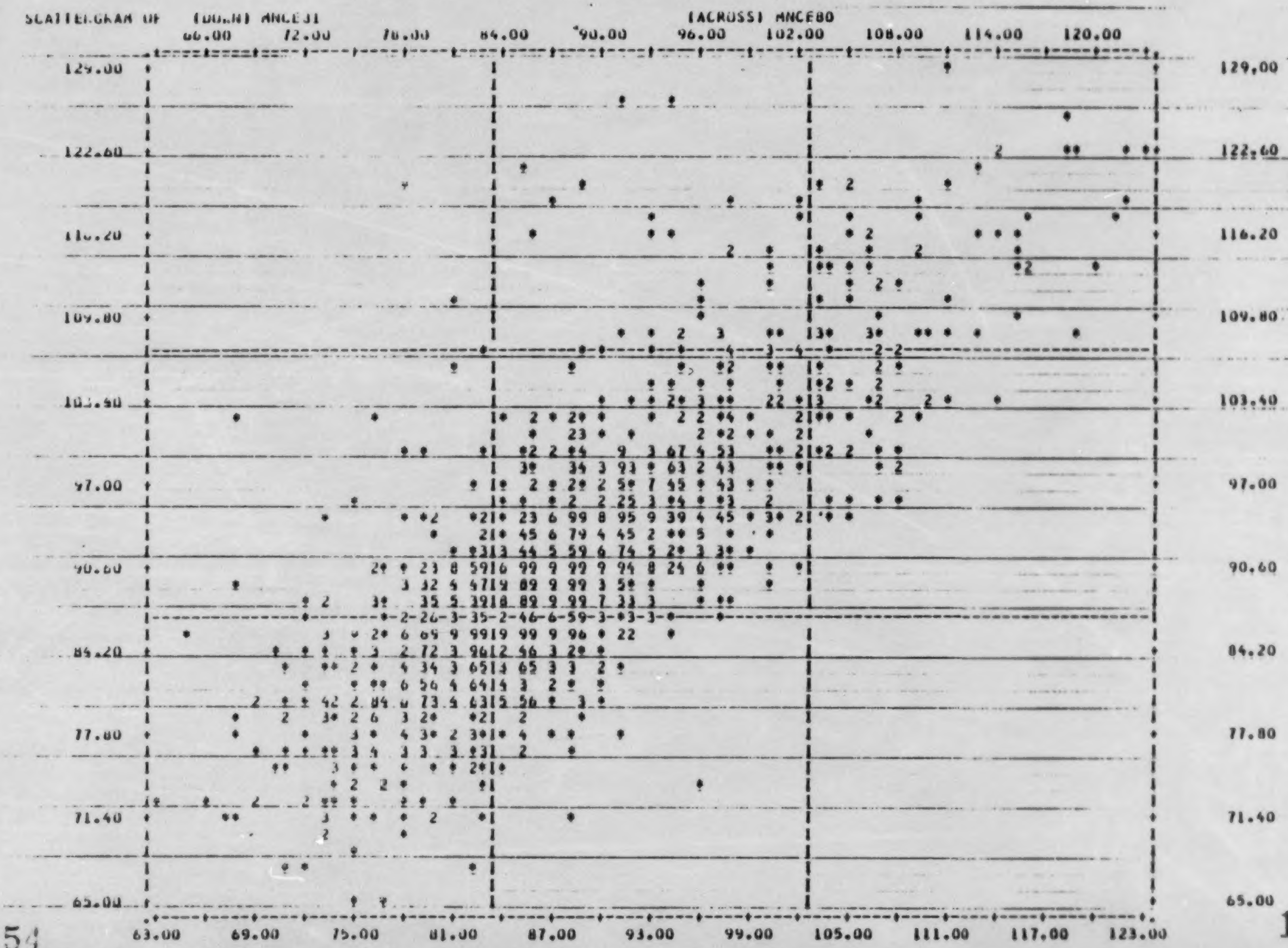
3.7.1 Evaluation Design

To evaluate the impact of the Title I Project in grade 7, the MAT test scores in mathematics were examined for the same stratified sample of 1,626 pupils used for the reading evaluation. The record showed that 1,053 of them were neither Title I nor State Compensatory Education (SCE) participants, so they formed the basic pool for the control group. Further analysis revealed that 25% of the pupils in this group actually scored below the math cut-off line, but were above the threshold in reading. On the other hand, 147 subjects were students participating in the Title I reading program but not in need of mathematical remedial support. The remaining 426 pupils scoring below the cut-off line of 75 in reading and 87 in math were considered for the control group. This figure was a conservative estimate (52%) of the grade 7 Title I enrollment (as of March 1981); but it represented the total number of pupils in this grade for whom all four scores were available. After the necessary adjustments, the sample used for the regression analysis included 380 Title I participants (treatment group) and 349 regular classroom students (control group).

Initially, the data were examined for possible distortions. One of the hazards that could cloud interpretation of the findings has to do with floor and/or ceiling effects. From an inspection of the joint score distribution (see Figure 3.6), it was found that only 16 students have obtained a score below 70 and no more than 27 have scored above 111. This picture may look similar to the one obtained in the early grades. However, there is, one major difference: the correlation between the 1980 scores and the 1981 scores is a solid .75. This coefficient helps account for no less than 56% of the variation in the 1981 achievement of the control group. The implication of this finding for the Title I program is that the anticipated mean for the participating pupils can be quite accurately estimated. This makes the criterion for success more realistic.

The summary statistics derived from the regression analysis are reported in Table 3.9. This table reports the pretest means, the post-test means, and their respective standard deviations; the anticipated post-test mean for the treatment group, and the standard error of estimate; the mean gain or average pretest to post-test score change, in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual score or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meet the cutoff selection line); and the intercept difference and its statistical significance index.

FIGURE 3.6 DISTRIBUTION OF MATH TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 7



3.7.2 Findings

It was found that the Title I participants had an average math score of 80.97 in May 1980 as compared to a mean of 97.65 for the control group. This represented a 16.68 point gap between the two subgroups. In the absence of the Title I supplemental instruction, a deficit of at least 141 points could still be expected between them. In specific numbers, this indicated that the 1981 MAT average for the Title I pupils was expected to be 85.88 as compared to a mean of 100.1 for the comparison group. As it turned out, the Title I students obtained an average score of 84.61. The difference is only 1.27. It is equivalent to a NCE value of -2.6 and is not statistically significant. Since the improvement does not go beyond the expected level, the stated objective of the program has not been met in this grade.

This fact does not mean no improvement has occured in student performance. The improvement may have been too small to affect the mean. There exists also the possibility of an interaction between the instructional program and student's ability, the initially stronger pupils reacting differently than the ones with low pretest scores. To obtain some evidence on the latter point, the coefficient of variation was calculated for the Title I population from one year to the next. The variation coefficient is equal to .06 on the pretest (4.7/81.0) and to .07 on the post-test (6.04/84.6). The difference is only .01, indicating that the degree of homogeneity is practically the same. There is no differential adjustment to the instuctional program among students The underachievement trend is typical of the entire Title I population in grade 7.

The area of greatest concern can be further explained by comparing the anticipated and actual scores at the different points of the score distribution, the middle point (mean) and the upper tail (where the regression lines

TABLE 3.9

Selected Statistical Data for Title I Students (Public Schools) in the Computational Skills Project (CSP) Grade 7

		Treatment Grp (N=380)	Control Grp (N=349)
1.	Pretest mean	80.97	97.65
2.	Standard deviation for (1)	4.72	8.47
3.	Post-test mean	84.61	100.10
4.	Standard deviation for (3)	6.04	9.62
5.	Expected post-test mean	85.88	
6.	Standard error of estimate	6.35	
7.	Difference at mean	-1.27	
8.	t value for (7)	.9	
9.	Lower intercepts	34.09	16.81
10.	Upper intercepts	88.36	91.02
11.	Difference at intercepts	-2.66	

* Significant at the .05 level

intercept the cut-off mark). The expectation was that a pupil scoring near the cut-off point of 87 would, in the absence of the Title supplemental instruction, obtain a post-test score of 97.02. The actual performance (88.36) comes within 3 points (2.66) of that projection. The difference between the two figures is not statistically significant at the .05 level. However, since this discrepancy obtained near the upper tail of the distribution is larger than the one observed at the mean, it was concluded that the lack of progress or underachievement tends to be more serious with the initially 'more able' students.

What are the implications of the various findings for next year Title I selection? The guidelines followed this year dictated that a pupil entering grade 8 and who had a MAT math score of 90 or less, should be considered for remedial instruction. Based on the actual post-test mean and standard deviation it is calculated that 19% of the formerly Title I participants scored above the 90 threshold, and thus will no longer be in need of the remedial service. The remaining 81% of the students remain in need of supplemental instruction in the coming academic year.

3.8 Project Evaluation - Grade 8 Public School

3.8.1 Evaluation Design

To evaluate the impact of the Title I Project in grade 8, the MAT test scores in mathematics were examined for the same stratified sample of 1,614 pupils used for the reading evaluation. The record showed that 1,209 of them were neither Title I nor State Compensatory Education (SCE) participants, so they formed the basic pool for the control group. Further analysis revealed that 32% of the pupils in this group actually scored below the math cutoff line, but were above the threshold in reading. On the other hand, 122 subjects were students participating in the Title I reading program but not in need of mathematical remedial support. The remaining 483 pupils scoring below the cutoff line of 79 in reading and 90 in math, were considered for the control group. This figure was a conservative estimate (88%) of the grade 8 Title I enrollment (as of March 1981); but it represented the total number of pupils in this grade for whom all four scores were available. After the necessary adjustments, the sample used for the regression analysis included 235 Title I participants (treatment group) and 300 regular classroom students (control group).

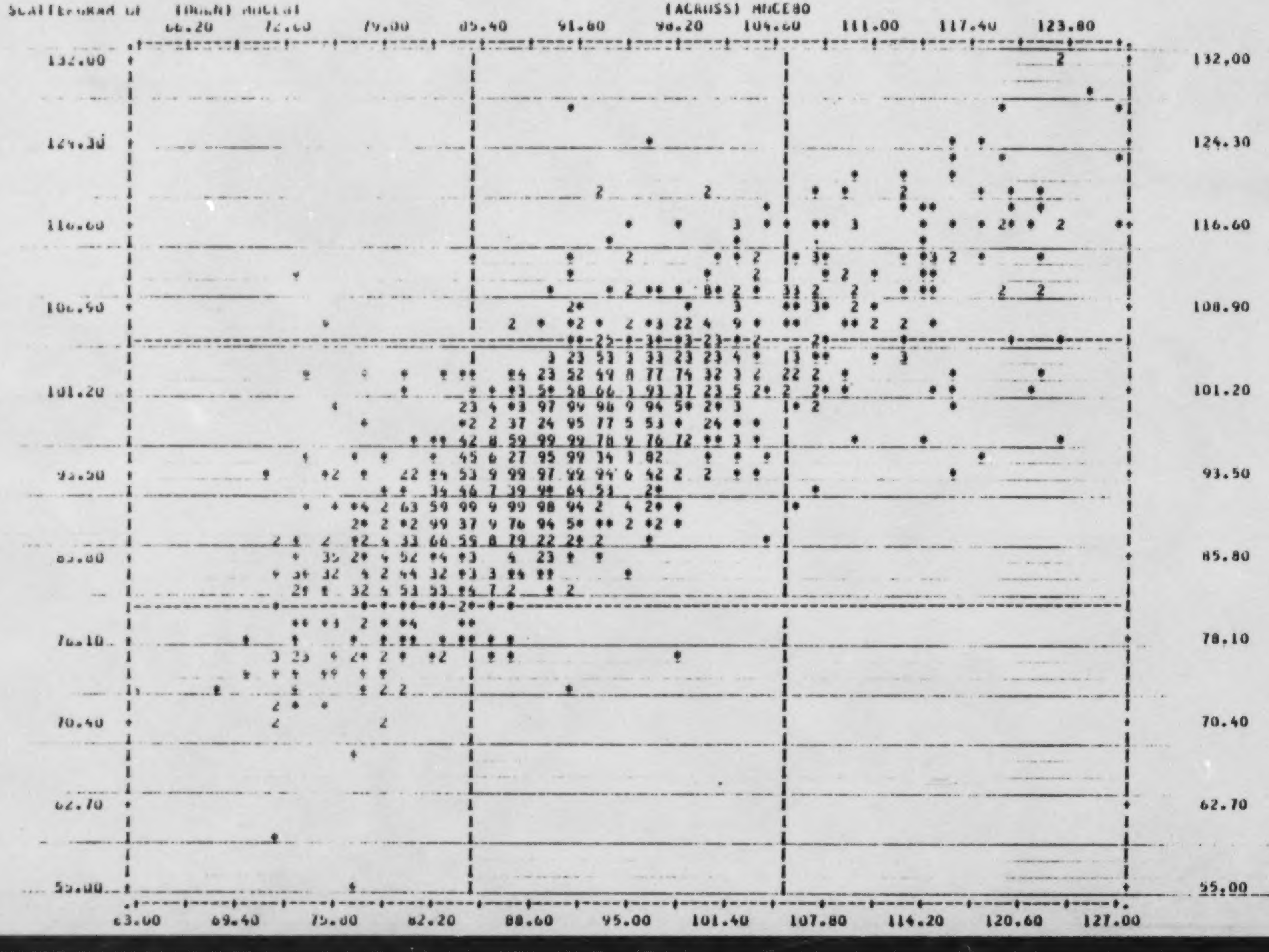
Initially, the data were examined for possible distortions. One of the hazards that could cloud interpretation of the findings has to do with floor and/or ceiling effects. From an inspection of the joint score distribution (see Figure 3.7), it was found that only 4 students have obtained a score below 70 and no more than 18 have scored above 120. This picture may look similar to the one obtained in the early grades. However, there is, one major difference: the correlation between the 1980 scores and the 1981 scores is a solid .68. This coefficient helps account for no less than 46% of the variation in the 1981 achievement of the control group. The implication of this finding for the Title I program is that the anticipated mean for the participating pupils can be quite accurately estimated. The criterion for success won't be spuriously high.

The summary statistics derived from the regression analysis are reported in Table 3.10. This table reports the pretest means, the post-test means, and their respective standard deviations; the anticipated post-test mean for the treatment group, and the standard error of estimate; the mean gain or average pretest to post-test score change, in both standard scores and Normal Curve Equivalents (NCE); the statistical significance index for this residual score or 'gain'; the values of the lower intercepts and of the upper intercepts (where the regression lines meet the cutoff selection line); and the intercept difference and its statistical significance index.

3.8.2 Findings

It was found that the Title I participants had an average math score of 82.98 in May 1980 as compared to a mean of 102.87 for the control group. This represented a 19.89 point gap between the two subgroups. In the absence of the Title I supplemental instruction, a deficit of at least 13 points could still be expected between them. In specific numbers, this indicated that the

FIGURE 3.7 DISTRIBUTION OF MATH TEST SCORES (SCATTERGRAM) FOR TITLE I STUDENTS, METROPOLITAN ACHIEVEMENT TEST (MAT), GRADE 8



1981 MAT average for the Title I pupils was expected to be 91.48, as compared to a mean of 104.73 for the comparison group. As it turned out, the Title I students obtained an average score of 88.62. The yield is a negative 2.86 which is equivalent to a NCE value of -3.5. At the .05 alpha level, the calculated t-value is statistically significant. Since the improvement does not go beyond the expected level, the stated objective of the program has not been met in this grade.

This fact does not mean no improvement has occured in student performance. The improvement may have been too small to affect the mean. There exists also the possibility of an interaction between the instructional program and student's ability, the initially stronger pupils reacting differently than the ones with low pre-test scores. To obtain some evidence on the latter point, the coefficient of variation was calculated for the Title I population from one year to the next. The variation coefficient is equal to .06 on the pre-test (4.9/82.98) and to .08 on the post-test (7.4/88.62). The difference is only .02, indicating that the degree of homogeneity is practically the same. There is no differential adjustment to the instuctional program among students. The underachievement trend is typical of the entire Title I population in grade 8.

The area of greatest concern can be further explained by comparing the anticipated and actual scores at the different points of the score distribution, the middle point (mean) and the upper tail (where the regression lines intercept the cut-off mark). The expectation was that a pupil scoring near the cut-off point of 90 would, in the absence of the Title I supplemental instruction, obtain a post-test score of 96.15. The actual performance of 94.75 comes within 3 points (2.9 exactly) of that projection. This is a -3.5 deficit in NCE value. The calculated t-value does reach significance at the

TABLE 3.10

Selected Statistical Data for Title I Students (Public Schools) in the Computational Skills Project (CSP) Grade 8

		Treatment Grp (N=235)	Control Grp (N=300)
1.	Pretest mean	82.98	102.87
2.	Standard deviation for (1)	4.94	9.7
3.	Post-test mean	88.62	104.73
4.	Standard deviation for (3)	7.43	9.53
5.	Expected post-test mean	91.48	
6.	Standard error of estimate	7.01	
7.	Difference at mean	-2.86	
8.	t value for (7)	2.7*	
9.	Lower intercepts	16.6	36.14
10.	Upper intercepts	94.75	96.15
11.	Difference at intercepts	-1.4	

* Significant at the .05 level

.05 alpha level. However, since the score discrepancy observed near the upper tail of the distribution is comparable to the one observed at the mean, it was concluded that the underachievement problem tends to be more serious with the initially low scoring students.

3.9 Project Evaluation - All Grades, Public School

3.9.1 Conclusions and Recommendations

The evaluation of the Title I Computational Skills Program (CSP) in grade 2 to 8 is based on a total of 4,927 students. This figure represents the number of pupils in these grades for whom pretest and post-test scores in reading and math were available.

Program Effectiveness. In general, there seems to be higher correlation between the math pretest and post-test than was obtained for the reading assessment. This is in conformity with common educational observation: achievement in mathematics is usually found to be more sensitive to classroom instruction than is reading performance. The practical implication of the moderate to high correlations obtained is that the projected mean post-test score for the Title I group can be estimated more accurately than was the case with the reading program.

The evidence yielded by the regression analysis shows that the achievement level goes beyond the expected score in none of the seven grades studied. The actual performance comes within two-to-three points of the projection, and is not significant in any of the cases but one. The only exception is observed in grade 3 where the mean post-test score falls almost six points off the anticipated score and is statistically significant. The overall picture remains the same whether the score change is examined at the mean or at the intercept (near the cut-off line). The principal program objective has not been met.

What exactly do these findings say about program effectiveness? To put the question in perspective, one needs to consider it in light of the educational practices that supposedly led to these outcomes. That is especially

TABLE 3.11

Summary of Data of Title I Students in Computational Skills Project (CSP), Public Schools

Metropolitan Achievement Test (MAT)

Grade	Mean Pretest	Expected Mean	Mean Post-test	Mean Score Change	NCE Value	t-value	Change t Intercept	NCE Value
2	34.23	51.91	51.71	- .2	0	.3	-1.49	- 5.9
3	50.07	65.24	59.57	-5.67	-9.4	3.6*	-5.92	-10.3
4	57.3	72.75	69.43	-3.32	-7.4	3.4*	-2.07	- 2.3
5	68.42	77.67	75.4	-2.27	-7.0	3.3*	-1.95	- 3.6
6	73.8	83.27	82.38	- .89	-1.2	1.2	-2.59	- 4.8
7	80.97	85.88	84.61	-1.27	-2.6	.9	-2.66	- 5.4
8	82.98	91.48	88.62	-2.86	-3.5	2.7*	-1.40	- 1.1

*Significant at .05

important here because the pattern of results brings to mind the following question: Is the Title I math program used as a supplement or as an alternative to regular classroom instruction for pupils with remedial needs? If, in actuality, the Title I project provides the only math instruction to the underachieving students (alternative to regular classroom), then the program is effective, since student achievement matches the projected performance level. But, if the Title I program in mathematics is truly supplemental, then the program lacks effectiveness, since student performance does not exceed the mean score expected with regular classroom instruction alone. What is being suggested here is that project's administrators and coordinators need to look closely at instructional practices in the coming year.

Differential Adjustment to Program. This point refers to the possibility of an interaction between the instructional program and student's ability, the initially stronger students reacting differently than the students with low pretest scores. Such a conclusion has some validity only in grade 3 and grade 6. In grade 3, the degree of homogeneity in the Title I population has slightly decreased: This is an indication that the initially 'more able' pupils have been able to improve slightly in their performance, while the pupils with low pretest scores tend to experience greater difficulty from year to year. In grade 6, the reverse trend is detected: The initially low-scoring pupils have been able to improve their math performance moderately, while the 'more able' pupils have not been so successful. In the other grades, there has been no reduction in disparities among Title I students from one year to the next.

Next Year Selection. If the same cutoff scores used in September 1980 are retained for Title I selection in September of 1981, one can expect to have approximately 79% of the participating students still in need of remedial services. In other words, from grade to grade, about 20% of the pupils served this year have obtained a score above the cut-off line: This means that their computational ability is now strong enough to allow participation in the regular classroom curriculum. In subsequent years, any evaluation of sustaining effects of the Title I project should concentrate on this or similar group of students.

3.10 Project Evaluation - Nonpublic Schools

3.10.1 Evaluation Design

All students in grades 2-8 in the nonpublic schools in Newark took the Metropolitan Achievement Test (MAT) in the Spring of 1980 and again in the Spring of 1981. Students scoring below the cut-off scores listed in Table 3.12 in the Spring of 1980 were designated as needing Title I remedial assistance. The total number of participants with complete pretest and post-test scores for nonpublic schools grades 2-8 was 786. There were 132 students selected because they fell below the cut-off on the Total Math subscale of the MAT.

Because the selection for participation in the Title I program in the Fall of 1980 was based on MAT scores given in the previous Spring, the Spring pretest scores had to be adjusted to reflect scores students would have obtained if they had been re-tested just before the Title I programs began. The adjusted pretest selection score, therefore, refers to the MAT scores taken in the Spring of 1980 that were adjusted to estimate an average MAT pretest score for Title I participants. This average adjusted pretest selection score was calculated in the following manner:

$$X_{p'} = X_t - r_{xx}(X_t - X_p) \text{ where;}$$

$X_{p'}$ = the expected mean score of the Title I group on the pretest if a separate pretest had been administered;

X_p = the mean score of the Title I group on the selection pretest;

X_t = the mean score of the total group (from which the Title I students were selected) on the pretest selection. The determination of the number of non Title I students selected per grade was based on the number of participants in the Title I project in that grade. Individual members in the non-Title I group were then selected by using a table of random numbers; and

r_{xx} = the test/re-test reliability for the total group.

Post-test scores on the MAT were obtained and were compared with the average adjusted pretest selection scores calculated from MAT scores obtained in the Spring of the previous year and the previous grade level. Percentile ranks were converted to Normal Curve Equivalent (NCE) scores. According to the conversion table supplied in the User's Guide, ESEA Title I, Evaluation and Reporting System, Revised, 1978. (See Appendix E)

3.10.2 Findings

Table 3.13 summarizes the results of the modified Model A (see Appendix A) evaluation for the nonpublic Title I participants on the Total Math subscale of the MAT.

TABLE 3.12

Title I Cutoff Scores Reported for the Total Math Subscale on the Metropolitan Achievement Test (MAT)

Nonpublic Schools

Grade Level	Total Math Standard Score
2	40
3	56
4	65
5	75
6	82
7	87
8	90

Note. The total Math subscale included subtests measuring computation, concepts, and problem solving for all grade levels.

TABLE 3.13

Percentile Ranks and NCE's, Total Math Subscale of the Metropolitan Achievement Test (MAT) for Nonpublic School Title I Participants

Grade in School	Number of Participants	Adjusted Average Pre-test Score (Spring 1980)		Average Post-test Score (Spring 1981)		Gain Score
		%tile rank	NCE	%tile rank	NCE	NCE
2	5	22	34	22	34	0
3	29	16	31	14	27	- 4
4	20	12	25	13	26	+ 1
5	37	14	27	16	29	+ 2
6	30	5	15	16	29	+14
7	6	14	27	13	26	- 1
8	5	19	32	22	34	+ 2

According to the guidelines in the User's Guide for interpreting NCE gains, only the sixth graders performed significantly better on the post-test in math than they would have been expected to had they not participated in the Title I Program. The gain scores reported for the remaining grades did not constitute real differences between pretesting and post-testing and may be attributed to measurement error. However, it should be noted that NCE gains are affected by the number of students in each grade. Therefore, the same NCE gain for a larger group may be meaningful, whereas the same gain for a smaller group may indicate no significant gain at all. Due to this factor, and because percentile ranks are more easily understood, the results of the modified Model A evaluation are discussed below in terms of percentile ranks for each grade.

Second Grade. Of the students selected for Title I, five second graders had pretest and post-test scores on the Total Math subscale of the MAT. The average adjusted pretest selection standard score for these five students was 33.88. This adjusted pretest selection score was at the 22nd percentile. With no treatment intervention, these 5 students would need an average post-test standard score of approximately 51 to remain at the 22nd percentile. In fact, when these students were tested in the Spring of 1981, the average standardized post-test score was 51.40. Because there was not a significant change in the average score from pretesting to post-testing, the Title I objective was not attained for this grade level.

Third Grade. The average Total Math pretest selection score for the 29 third grade Title I participants with pretest and post-test scores was at the 16th percentile. This indicated that the gain in the average Total Math score from pretest to post-test for the 29 third grade participants did not keep pace with the expected gain had not treatment intervention occured. Thus, the objective of Title I was not attained for this group of third graders.

Fourth Grade. Twenty students were selected for Title I based on their Total Math subscale scores. The average adjusted pretest selection standard score for these 20 students was 57.02. To maintain the pretest selection rank of 12 on the post-test a year later, students would have to score an average standardized post-test score of 67. The obtained average standardized post-test score was 67.45 or at the 13th percentile. Thus, the objective of Title I was not attained for grade level four.

Fifth Grade. The average Total Math score for the 37 Title I students at the end of fourth grade was at the 14th percentile. The post-test score a year later at the end of the fifth grade was at the 16th percentile. This indicated that the average Total Math score on the MAT for the Title I students gained two percentile ranks from the average pretest selection score to the average post-test score. Because this gain could be attributed to measurement error, the objective of Title I was not attained for this grade level.

Sixth Grade. The average adjusted pretest selection score on the Total Math subscale was at the 5th percentile. At the end of the sixth grade, the 30 Title I participants had an average post-test Total Math score at the 16th percentile. This was the largest gain for students participating in Title I programs for either math or reading. This gain represents a significant gain from pretesting to post-testing. Thus, the objective of Title I was attained for this grade level.

Seventh Grade. The average adjusted pretest selection Total Math score at the end of sixth grade for the six seventh graders in Title I was at the 14th percentile. The post-test score at the end of the seventh grade was at the 13th percentile. This decrease of one percentile point can be attributed to measurement error and, therefore, does not represent a significant decrease in the gains expected from pretesting to post-testing. Nonetheless, the objective of Title I was not attained for this group of seventh graders.

Eighth Grade. The average adjusted pretest selection Total Math score of the five eighth graders was at the 19th percentile. The average post-test score was at the 22nd percentile. The five Title I students' average score on the Total Math subscale increased from the 19th to the 22nd percentile from the Spring of 1980 to the Spring of 1981. However, this increase most likely represents errors inherent in the MAT Total Math subscale as a measure of computational skills and does not represent a gain in actual achievement in computational skills. Unless selection of the Title I objectives and teaching materials was done with the item content of the 1970 edition of the MAT taken into consideration, the correspondence between the content of the Title I program and the content of the test items is likely to be different. In effect, it can be argued that what was being taught was not being measured by the MAT. If this were the case, the MAT may not be measuring all the desired outcomes of instruction at the grade levels tested. Therefore, it is our recommendation that the content validity of the MAT subscales be examined in terms of the expectation of the Title I program. Thus, the objective of Title I was not attained for this grade level.

3.10.3 Conclusions and Recommendations

The size of the positive gain for grade six on the Total Reading subscale from pretest to post-testing could be interpreted as a significant increase in their expected progress. The remedial program on the average had the desired positive impact with these students. The remaining grade levels in the Computational Skills Program did not attain the goal of the Title I program. The goal these Title I participants failed to attain was defined in terms of the modified Model A evaluation. That is, on the average, these students participating in the program scored on the Total Math subscale of the MAT where they were expected to score had no special instruction provided during the school year.

However, the expected gain for all grade levels was based on an average score and that average score is only meaningful within the context of the Model A evaluation. There is no way of knowing what the gain score of these students would have been without Title I intervention, and the expected gain score does not reflect the gains made by any one particular student.

The instructional effectiveness of the Title I program is only one of the many factors affecting positive and negative student gains on the MAT. Among other factors are a student's past educational history, the out of school environment of the students, the number of absences during the term, and the general morale of the whole school system. The performance of the students on the MAT is also affected by whether the test measured a representative sample of the intended learning outcomes of the Title I program. The content of the 1970 edition of the MAT, that was administered to the nonpublic school participants in the Spring of 1980 and 1981, was developed prior to 1968 when the experimental form of the test was administered. Therefore, the curriculum materials on which the 1970 edition of the MAT is based are now more than 15 years old.

CHAPTER 4

PROGRAM FOR ENGLISH PROFICIENCY

4.1 Project Narrative

4.1.1 Objective

The general objective of the Program for English Proficiency (PEP) was to provide supplemental remedial instructions to students with limited English proficiency. The participating students were identified through an appropriate needs assessment as being educationally and linguistically deficient. The program proposal stated that students, as a result of participation in the eight-month Title I Program for English Proficiency (PEP), were expected to improve their English language proficiency by the points indicated below as measured by the Maculaitis Language Assessment Battery (LAB). Improvement was anticipated in the four major areas of language development; i.e., listening, speaking, reading, and writing. The Program for English Proficiency (PEP) consisted of two major components: a) an English as a Second Language (ESL) component and b) Language Experience Bilingual (LEB) component. For both components, the following improvement criteria for each grade level were set by the project staff after consultation with the author of the Maculaitis Language Assessment Battery (LAB) test:

Grade Level	K	1	2	3	4	5	6
Improvement Criteria (Points)	10	10	15	15	20	20	20

Since the pretest was administered in December 1980, and the post-test in May 1981, there was only a five-month intervention program for PEP students. These students were also expected to improve in specified noncognitive skills as measured by pretest/post-test teachers ratings on a noncognitive checklist. (The evaluation of noncognitive data is presented in Chapter 10).

4.1.2 Student Selection

The Language Assessment Battery (LAB), developed by the New York City Board of Education in 1976, was used to select students for the Program for English Proficiency (PEP). Prior to being tested with the LAB, students were assessed through procedures established by the Newark Office of Bilingual Education to determine eligibility for bilingual instruction. According to the technical manual, "The Purpose of the Language Assessment Battery (LAB) is to determine whether Spanish speaking and Spanish surnamed children can effectively participate in the learning process in English; and if not, whether they can more effectively participate in Spanish". The LAB was designed to measure the primary areas of language by assessing reading, writing, listening comprehension and speaking skills in both English and Spanish. In Newark, PEP participants were tested in English.

Students were tested in September 1980 with the appropriate LAB test to determine eligibility for the PEP program. All students whose scores were one or more points below the local mean score for each grade level were considered eligible for placement into the English as a Second Language (ESL) component of PEP. Student scoring below the 70 percentile of the district mean were selected for participation in the Language Experience Bilingual (LEB) component of the PEP program. Table 4.1 presents the cut-off score and number of eligible pupils at each grade level. Students participating in the Language Experience Bilingual component were provided supplementary English language enrichment activities by teacher aides.

TABLE 4.1

Cut-off Score on the Language Assessment Battery (LAB) and Number of Eligible Pupils at Each Grade Level

Grade	Test Level	Cut-off Score	No. of Eligible Pupils PEP/ESL	- LE/Bilingual
K	Level 1 (40 items)	10	399	357
1	Level 1 (40 items)	17	340	345
2	Level 1 (40 items)	25	243	68
3	Level 2 (80 items)	42	388	114
4	Level 2 (80 items)	57	380	45
5	Level 2 (80 items)	64	257	25
6	Level 2 (80 items)	60	201	30
TOTAL			2,208	984

4.1.3 Number of Students

Fifteen public schools and one nonpublic school enrolled a total of 1,716 students in the PEP as of January 1981 (see Table 4.2). This represented 77.7% of the 2,208 originally eligible students. Not all eligible PEP pupils received Title I services due to financial constraints.

TABLE 4.2

Number of Students Receiving Instruction in

Program for English Proficiency (PEP) by Project Teachers

School	No. of Students	No. of Teachers
Abington Avenue	88	2
Broadway Elementary	64	2
Burnet Street	63	2
Dayton Street	51	2
Elliott Street	178	6
First Avenue	38	2
Franklin Elementary	231	6
Hawkins Street	73	2
Dr. Wm. Horton	171	4
McKinley Elementary	89	4
Miller Street	96	2
Roberto Clemente	299	6
South Street	125	2
South 17th Street	44	2
Sussex Avenue	67	2
St. Columba	39	1
TOTAL	1,716	48

TABLE 4.3

Number of Students Receiving Language Experience Bilingual (LEB) Instruction by Teacher Aides

School	No. of Students	No. of Teacher Aides
Abington Avenue	30	2
Alexander Street	13	1
Belmont-Runyon	34	3
Broadway Elementary	19	1
Burnet Street	42	1
Camden Street	22	2
Dayton Street	58	3
Elliott Street	107	6
First Avenue	84	3
Franklin Elementary	133	8
Hawkins Street	31	4
Dr. Wm. Horton	102	3
Madison Avenue	6	1
McKinley Elementary	104	6
Miller Street	41	5
Roberto Clemente Elementary	120	10
Roseville Avenue	49	3
South Street	45	4
South 17th Street	35	8
Sussex Avenue	52	5
St. Columba	37	3
TOTAL	1,164	82

During 1980-1981 a split funded English as a Second Language (ESL) program was instituted at 15 public schools with Program for English Proficiency. Under this structure, ESL teachers assumed a dual role and consequently, provided both the Title I ESL instruction and the basic ESL instruction which must be provided by the local district. Split funding was implemented by program only; the salaries of the 23 original Title I PEP project teachers continued to be paid from Title I funds. The local Board paid for the salaries of the remaining 25 teachers. Split funding reduced the dual pull- outs of students from bilinugal classrooms to receive ESL instruction, and consequently minimized scheduling conflicts.

4.1.4 Staff

The Program for English Proficiency (PEP) is under the direct supervision of a program administrator with a PEP supervisor to assist in the coordination of project teachers and to perform related tasks. A total of 48 Title I project teachers were assigned to the PEP program. Table 4.2 presents the number of students and number of project teachers assigned to each school. Teacher aides reinforced the basic concepts of English language under the supervision of the classroom teacher.

4.1.5 Frequency of Instruction - Teacher Pupil Ratio

A total of 60 minutes per day, five days per week, of instructional time was devoted to English as a Second Language (ESL). For twenty minutes of each ESL period, project teachers worked directly with PEP students on supplemental activities. Instruction was provided to individual students and small groups of not more than 10 students.

4.1.6 Educational Setting

Students in the Language Experience Bilinugal component received supplementary English instruction in the regular classroom. ESL students, however, received their Title I ESL instruction in a location other than the regular classroom. Separate facilities were provided to work with pull-out students.

4.1.7 Activities and Materials

According to the project proposal, PEP/ESL teachers at all grade levels utilize various types of oral pattern practice activities to help students improve their English language skills. They include:

- Substitution
- Replacement
- Paired sentences
- Transformation
- Reduction
- Direct practice
- Integration
- Expansion

Types of drill included:

- Repetition
- Substitution
- Chain
- Choral repetition
- Question and answer
- Dialogue

Reading and Writing lessons included:

- Discussion of new vocabulary
- Review of unfamiliar elements
- Reading passages aloud
- Asking questions for comprehension
- Individual reading
- Re-writing stories using sentences given by students
- Dramatizing stories
- Illustrating and discussing sequence

Materials used in the PEP program include a variety of commerical and teacher prepared items such as:

- "Silent Way" materials
- Pictures
- Language experience charts
- H200 materials
- English Around the World
- Filmstrips
- Cassette players
- Radio and television
- Puppets
- Books and magazines
- Games

In the noncognitive area, Title I PEP teachers and teacher aides used manipulative material, games and puzzles, audio-visual materials and other high interest materials to reinforce concentration and self control. Students with severe medical and dental problems were referred to the school nurse, dentists and appropriate health agencies.

4.2 Project Evaluation

4.2.1 Evaluation Design

The purpose of this evaluation was to appraise the progress made by pupils in the Program for English Proficiency (PEP) in strengthening their English language skills. The data were evaluated with the One Group Pretest/Post-test Design as described in Appendix A. The Maculaitis Language Assessment Battery (LAB) developed at the Graduate School of Education, New York University was used to measure progress in the PEP program. Appropriate test levels (see Table 4.4) were administered in December 1980 and May 1981. Only students with complete pretest and post-test scores were included in the evaluation.

TABLE 4.4

Language Assessment Battery (LAB) - Test Format

Grade Level	Skill	#Items
K-1	Oral English Expression	5
	Listening Comprehension	18
	Identification	15
		38
2-3	Oral English Expression	5
	Vocabulary Knowledge	30
	Listening Comprehension	21
	Reading Comprehension	51
		117
4-5	Oral Pronounciation	10
	Writing Ability	30
	Vocabulary Knowledge	25
	Test Comprehension	24
	Reading Comprehension	37
		126
6-8	Oral Production	19
		15
	Reading Comprehension	50
	Writing Ability	30
		114

The same subjects were observed for a five-month period. A correlated t-test was used to determine whether gains made between pretesting and post-testing were statistically significant. (The Correlated t-test is the repeated measure design on the same group with a time interval between pretesting and post-testing).

The PEP improvement criteria stipulated that growth would be determined by specific increase of the post-test over the pretest. To test for educational significance of the gains, each participant's total test score (pretest only) was increased by 10, 15, or 20 points, according to the grade level. A frequency distribution of the total raw scores was also calculated. Because the LAB was not normed at the time of this evaluation, it was only possible to give limited meaning to the pretest and post-test scores or the amount of progress made by students.

4.2.2 Findings

The Program for English Proficiency (PEP) consisted of two sub-components: English as a Second language (ESL) and Language Experience Bilingual (LEB). Each component served a separate audience based on the student selection criteria. Tables 4.5 and 4.6 present the summary for each component according to grade level.

Included below is a detailed analysis of the data. Results for both public and nonpublic schools are presented. However, Only one nonpublic school participated in the ESL component and none in the LEB component.

English as a Second Language. District-wide data are presented in table 4.5. The table reveals that gains for the entire district, including public and nonpublic schools, were statistically significant at the .05 level. The gains ranged from a low of 1.90 in grade 2 to a high of 11.00 in grade 3. In grade 4 there was negative change (N=154; t=1.27 for the entire grade level.

However, closer examination of grade 4 data indicated that there were some gains in the subareas (see Appendix C). From a statistical point of view, the English proficiency objective for the districtwide ESL component was therefore attained by all grades except grade 4. To determine whether the improvement criteria set by the PEP staff were attained, the gain scores were compared with the improvement criteria. They ranged from a low of 3.55 for grade 2 to a high of 15.90 for grade 3 (see table 4.5). With the exception of grade 4 these gains were above the improvement criteria stipulated by the PEP program objectives. Therefore, the ESL program in general attained its improvement criteria.

Further breakdown of the data revealed statistically significant gains in all public school grades except grade 4 (see Table 4.6). The greatest overall gains occurred in the third grade in reading comprehension, followed by listening comprehension, oral production and vocabulary knowledge. Three out of fourteen schools demonstated significant gains in most grade levels with Roberto Clemente School performing the best. Only two schools revealed negative changes for all the grades reported. An analysis of the subtests revealed statistically significant gains in some of the cognitive areas. A comparison of the total gains across grades revealed a contrast between the large gains attained at the third grade level and the negative change evident in grade four. Statistically significant gains were also found in grades 5 and 6. To determine whether the improvement criteria were attained, the gain scores were compared with the improvement criteria (Table 4.6). The scores ranged from a low of 3.55 in grade 2 to a high of 15.90 in grade 3. Thus all grades attained the improvement criteria except grade 4.

TABLE 4.5

ESL Sub-Component Districtwide Mean ($\bar{X}$) Gains

(Public and Nonpublic Schools)

Grade	N	$\bar{X}$	SD	$\bar{X}$	SD	Mean Gain	Correlated t
Kdg	177	37.81	18.67	48.98	22.92	11.17	8.90*
1	231	58.51	22.76	67.14	22.41	8.63	3.55*
2	180	77.98	31.19	81.53	28.60	3.55	1.90*
3	215	102.41	29.24	118.31	25.65	15.90	11.00*
4	154	103.31	29.68	102.18	33.12	-1.13	-1.27
5	87	105.52	36.08	112.05	32.59	6.53	1.87*
6	91	90.93	36.52	106.78	26.82	15.85	5.46*

* Statistically significant at .05 level

TABLE 4.6

ESL Sub-Component Public Schools Mean ($\bar{X}$) Gains

Grade	N	$\bar{X}$	SD	$\bar{X}$	SD	Mean Gain	Correlated t
Kdg	177	37.81	18.67	48.98	22.92	11.17	8.90*
1	220	54.20	22.76	62.53	22.41	8.33	8.49*
2	180	77.98	31.19	81.53	28.60	3.55	1.90*
3	215	102.41	29.24	118.31	25.65	15.90	11.00*
4	148	103.95	29.68	102.14	33.12	-1.81	-1.19
5	81	105.95	36.08	111.14	32.59	5.19	2.17*
6	86	90.34	36.34	106.62	26.88	16.28	5.48*

* Statistically significant at .05 level

As previously mentioned only one nonpublic school participated in the ESL component. Table 4.7 reveals statistically significant gains in three out of the four grades reported. The gains ranged from a low of 1.93 in first 2 grade to a high of 4.66 in the fourth grade. Even though there were some gains for grade five, the gains were not statistically significant. Thus the English proficiency objective for the nonpublic school's ESL component was attained at grades 1, 4, and 6. A comparision between the gain scores and the improvement criteria set by the PEP staff was made to determine whether or not the improvement criteria were attained. The gains ranged from a low of 6.09 for grade one to a high of 26.20 for grade six (Table 4.7). All grades attained the improvement criteria. As previously stated, from a statistical point of view, grade 5 did not attain the improvement criteria set by the PEP staff. This factor suggests either a descrepancy between the subjective criteria and statistical analysis, or a problem due to the nonstandardization of the Language Assessment Battery (LAB).

Language Experience Bilingual (LEB). Data for the LEB project was reported for public schools only; nonpublic schools did not have this component of PEP. Table 4.8 revealed that cognitive growth for LEB students was as significant as in the ESL component. Statistically significant gains were found in all grades except grade 5. Only in grade 5 was negative change (N = 11; t= -1.27) found. Closer examination of the data presented in Appendix C revealed that some gains were made in various subareas of grade 5 but they were not staitistically significant. Therefore, the LEB attained its English proficiency in all levels except grade 5. Data contained in Table 4.8 revealed that the gain scores were above the improvement criteria set by the PEP staff. They ranged from a low of 7.21 in Kindergarten to a high of 26.66 in grade 6. Thus the LEB attained its improvement criteria in all grades except in grade 5.

TABLE 4.7

English as a Second Language Component (ESL)

Nonpublic Students**

Grade	N	$\overline{X}$	SD	$\overline{X}$	SD	Mean Gain	Correlated t
1	11	86.27	13.75	92.36	14.68	6.09	1.93*
4	6	87.50	27.10	103.66	25.02	16.16	4.66*
5	6	99.83	30.95	124.50	47.16	25.67	1.76
6	5	101.00	25.87	127.20	16.47	26.20	2.13*

*Statistically significant at .05 level
** Only one nonpublic school participated.

TABLE 4.8

Summary Statistics for Language Experience Bilingual

(Public Schools)

Grade	N	$\overline{X}$	SD	$\overline{X}$	SD	Mean Gain	Correlated t
Kdg	112	73.65	21.89	80.42	20.04	7.21	4.19*
1	120	75.09	17.33	87.92	15.62	2.83	11.91*
2	51	83.25	22.03	99.45	23.56	16.20	6.51*
3	34	126.44	25.51	135.44	20.92	9.00	2.62*
4	23	129.08	21.76	143.91	20.66	14.83	4.20*
5	11	166.45	27.61	161.45	34.41	5.55	-1.27
6	12	120.00	30.61	146.66	26.00	26.66	3.89*

* Statistically significant at .05 level

4.2 Conclusions and Recommendations

From the analysis of the cognitive data, it was found that the overall growth in ESL and LEB was statistically significant and both components attained the PEP improvement criteria. For the ESL component only grade four of the public schools failed to show statistically significant gains or attain the program's improvement criteria. In the LEB component, grade five did not attain statistically significant gains. Overall, it was found that the district attained its goal of improving the English proficiency of the Title I PEP students in the ESL and LEB components in all grades except grades four and five, respectively.

It is recommended that PEP administrators focus on the fourth grade of the ESL component and on the fifth grade of the LEB to determine what caused little or no growth in learning in these grades. Perhaps the improvement criteria was too high. Or, perhaps the LAB's lack of norms influenced the deficit.

An assessment of the improvement criteria should be made to determine if discrepancies exist between the subjective criteria and statistical analysis. Such discrepancies might eliminate situations where statistically significant gains were realized but the gains did not attain the improvement criteria set by the program staff.

The PEP component accomplished unusual improvement in students growth. For example, within five (5) months, the objectives of the program were attained. A review of the program narrative would help to explain this incredible phenonmenon. First, the LAB was used to screen the students and place them in Title I remedial services while congnitive growth was also assessed by the LAB. None of these two tests were standardized at the time of this evaluation. It was therefore difficult to determine whether the two tests were measuring the same variables. Secondly, from the description of the tests provided, the tests were designed to screen language effectiveness and not to measure cognitive growth. It is therefore conceivable that cognitive performance of PEP students was not adequately assessed by these tests.

In conclusion, it is strongly recommended that PEP services continue to be made available to students in the district, notwithstanding the above noted statistical reservation. Significant gains were attained after only a five-month intervention period, indicating that more instruction should result in more student progress.

CHAPTER 5

PRE-KINDERGARTEN/KINDERGARTEN PROJECT

5.1 Project Narrative

5.1.1 Objective

The children participating in the Pre-Kindergarten/Kindergarten (Pre-K/K) project were selected based upon their needs in psychomotor, affective, social emotional, language, and general readiness skills areas. As a result of participation in the Pre-K/K Project, they were to show significant improvement in one or more of the areas as measured by the Newark Needs Assessment Instrument, which was administered in September 1980 and June 1981.

5.1.2 Selection of Pupils

Selection of pupils for participation in the Pre-K/K Project was based on the Newark needs assessment checklist. The checklist consisted of twenty-four items in the areas of psychomotor needs, social/emotional needs, general readiness, affective needs, and language. Pre-K pupils demonstrating a deficiency in fifteen or more of the items, and kindergarten pupils with deficiencies in thirteen or more of the items, were selected to participate in the Title I Program.

5.1.3 Number of Participants

As noted in Table 5.1 a total of 173 public Pre-K students and 1,862 public and nonpublic kindergarten (KDG) students were eligible for participation in the Title I program. The actual number in March 1980 was 1940 public and 162 nonpublic school participants.

5.1.4 Project Staff

The Project Coordinator and the classroom teachers scheduled activities to stimulate and motivate students. However, the responsibility for planning daily activities and providing instruction to individuals and small groups rested with the classroom teacher. Teacher aides under the supervision of the teacher were assigned to regular classrooms to help reinforce listening and readiness skills taught by the classroom teacher. The aides also assisted in the organization of individual folders and annotating progress charts.

TABLE 5.1

Eligible and Actual

Number of Pupils in Pre-K/K Program

	Eligible	Actual*
Public Pre-K	173	175
KDG	1,797	1,765
Nonpublic KDG	165	162
Total	2,135	2,102

*Represents pupils who entered the program after the original needs assessment was conducted. Those who entered the program later were assessed and were found to be eligible.

5.1.5 Frequency of Instruction/Adult Pupil Ratio

In May 1981 project teachers and teacher aides were asked to complete a survey asking for frequency of instruction (minutes per week) and adult/pupil ratio. The results indicated that no consistant district-wide pattern exists. There were variations from school to school, within schools, and often within grade levels in schools. Frequency of instruction reportedly ranged from 18 to 300 minutes for teachers and aides. Adult/pupil ratios ranged from 1/1 to 51/1. This ratio represents the total number of students with whom a teacher or teacher aide was in direct contact, within and across grade levels for the entire school year. The same patterns were reported in both public and nonpublic schools.

5.1.6. Materials

According to the project proposal, the usual materials for Pre-K/K instruction were used in the program. They included library books for story telling, matching letter to numeral items, counting, rhyming and listening materials, games, flannel boards, balls, bean bags, bicycles, balance beams and audio-visual materials such as film strips.

5.2 Project Evaluation

5.2.1 Evaluation Design

The purpose of the evaluation was to appraise the progress made by pupils in the Pre-K/Kindergarten Title I component in strengthening their readiness skills. The Pre-K/K Needs Assessment Report was completed by the classroom teachers for each pupil in September 1980 and May 1981. The Needs Assessment Report consisted of 24 items in 5 major areas.

Pre-K pupils demonstrating a deficiency in fifteen or more of these items and Kindergarten pupils with deficiencies in thirteen or more of these items were selected for participation in the Title I program. Performance objectives, accepted and approved by the New Jersey State Department of Education, were established based on improvement in at least five or more additional need areas for the Pre-K and nine or more additional need areas for the Kindergarten pupils. An improved score from pretest to post-test indicated an improvement of needs.

All pupils identified as having a need for the Title I Pre-K/Kindergarten program as of September 1980 were included in the analysis. The post-test analysis consisted of a frequency distribution of the gain scores for the total Pre-K/Kindergarten Title I population in the public and nonpublic setting (the gain scores, in this case, were a reduction of score indicating an improvement in needs). Frequency distributions and percentages of the gain scores for each school were also computed.

5.2.2 Findings

Pre-K programs, supplemented by Title I, were situated in five public schools throughout the district. As of September 1980, 173 pupils were eligible for participation in the Title I Pre-K Program. Assessment forms for 152 Pre-K pupils were submitted to Newark's Office of Research and Evaluation (ORE) in May 1981, and 16 assessment forms were omitted from the post-test data analysis due to missing data. Thus 89% of the assessment forms submitted to ORE were used in the final evaluation of the Pre-K Program.

Title I provided supplemental services to Kindergarten programs located in forty-three public schools. Although 1,694 pupils were identified in September 1980 as having a need for the Title I program, 1,613 pupils had available pretest and post-test data. Assessment forms were omitted from the final evaluation because of missing pretest or post-test data (missing data was due to dropouts, transfers, and pupils entering the program midway through the year). Assessment forms for 1,777 pupils were submitted to ORE in May, of which 164 were eliminated. Ninety-one percent (91%) of the assessment forms were used in the evaluation of the Kindergarten Program.

In seven nonpublic schools, Title I provided supplemental services to Kindergarten pupils identified as having cognitive need. As of September 1980, 166 pupils were eligible for participation in the Kindergarten Program. ORE received 166 assessment forms in May, of which 164 forms, or 99%, of the Pre-K pupils with pretest and post-test data met the stipulated performance objective.

According to Table 5.2, ninety percent (90%) of the Pre-K students with pretest/post-test data met the specified performance objective. Twenty-four percent (24%) of the Pre-K pupils made a gain of between five through eight in the various need areas. However, 66% of the Pre-K pupils realized a gain of nine or more which was the performance objective specified for the program. In the public schools, 70% of the kindergarten pupils achieved the performance criteria specifed by the Title I Office. As indicated in Table 5.2, 18% of the pupils made improvements in five to eight need areas while 8% realized gains anywhere from one to four need areas. Only 4% of the pupils showed negative change or no gains. Although the kindergarten pupil populations vary in the public schools (size of population, mobility, native language, attendance), the reader should note which schools have a high and low percentage (Table 5.3) of pupils achieving the performance objective specified by the Title I Office.

The kindergarten pupils in the nonpublic schools, as indicated in Table 5.4, performed slightly better than the public school pupils. Seventy-four percent (74%) of the 164 pupils with available pretest/post-test data met the performance objective specified for the Kindergarten Program. Fourteen percent (14%) of the pupils made gains of between five and eight, and 10% of the pupils made a slight improvement (1 to 4). Two percent (2%) of the nonpublic kindergarten pupils made no gains while participating in the program.

TABLE 5.2

Percentage of Gain, No Gain, and Loss as Determined by the Newark Needs Assessment Progress Report for Title I Pre-K Pupils in Public Schools.

			Loss of	No Gain	Gain of		
			1-4	0	1-4	5-8	9+
	N_1	N_2	%	%	%	%	
Camden St.	27	7		4			96
Fourteenth Ave.	12	2			8	17	75
Harriet Tubman	25	7			16	16	68
Louise A. Spencer	23	0			4	13	83
Thirteenth Ave.	49	0	2	2	10	47	39
Total	136	16	1	1	8	24	66

N_1 - Number of pupils with pretest and post-test data.

N_2 - Number of pupils with missing test data.

TABLE 5.3

Percentage of Gain, No Gain, and Loss as Determined by the Newark Needs Assessment Program Report for Title I Kindergarten Pupils in Public Schools.

			Loss of		No Gain	Gain of		
			8-5	4-1	0	1-4	5-8	9+
	N_1	N_2	%	%	%	%	%	
Abington Ave.	15	2					13	87
Alexander St.	30	0		3		10	20	67
Avon Ave.	39	0				13	13	74
Belmont-Runyon	56	4			2	5	16	77
Bergen Street	39	4		2			31	67
Bragaw Avenue	56	11				2	41	57
Broadway Elem.	29	1		3		3	28	66
Burnet St.	23	1					17	83
Camden St.	50	4				2	8	90
Chancellor Ave.	19	4			5	21	16	58
Clinton Ave.	35	0					26	74
Dayton St.	39	1				5	3	92
Eighteenth Ave.	47	0	2		6	19	38	34
Elliot St.	5	1		20				80
Fifteenth Ave.	65	5		3	2	12	22	62
First Ave	14	0				14		86
Fourteenth Ave.	25	2				4	8	88
Franklin	15	0						100
G.W. Carver	78	1				8	20	72
Harriet Tubman	21	4		5		24	29	43
Hawkins St.	38	0					24	76

TABLE 5.3

Continued

	N_1	N_2	Loss of 8-5 %	 4-1 %	No Gain 0 %	Gain of 1-4 %	 5-8 %	 9+
Hawthorne Ave.	38	12		5		8	8	79
Louise A. Spencer	72	0		1		7	13	79
Lincoln	20	4			10	20	45	25
Madison Ave.	77	10			1	8	20	71
Maple Ave.	9	25		1	3	9	22	65
Marcus Garvey	16	2						100
M.L. King Jr.	72	23				1	7	92
McKinley	47	2				17	32	51
Miller St.	18	4					11	89
Morton St.	27	0				7	48	44
Newton St.	18	3					33	67
Peshine Ave.	66	7				6	21	73
Quitman St.	39	1		36	36	26	3	
Roberto Clemente	4	6						100
Roseville Ave.	33	4		3		3	24	70
South St.	12	0				8	8	83
South 17th St.	52	8			17	27	23	33
Speedway Ave.	50	4					4	96
Sussex Ave.	32	1			3	6	9	81
Thirteenth Ave.	61	0			2		10	89
Warren St.	11	0				91	9	
William Horton	41	3			2	5	15	78
Total	1,613	164	0	2	2	8	18	70

N_1 - Number of pupils with pretest and post-test data

N_2 - Number of pupils with missing test data

TABLE 5.4

Percentage of Gain, and No Gain, as Determined by the Newark Needs Assessment Program Report for Title I Kindergarten Pupils in Nonpublic Schools.

	N_1	N_2	No Gain 0 %	Gain of 1-4 %	5-8 %	9+ %
St. Ann	19	0		16		84
Blessed Sacrament	23	1	4	4		91
St. Columba	45	0	2	9	13	76
St. Lucy	11	1			27	73
St. Michael	30	0		10	13	77
St. Rocco	16	0	6	25	38	31
St. Rose of Lima	20	0		5	20	75
Total	164	2	2	10	14	74

N_1 - Number of pupils with pretest and post-test data

N_2 - Number of pupils with missing test data

When combining the public and nonpublic kindergarten population (N=1,777) 70% met the criteria for program success. Only 4% of the public school pupils realized negative or no gains when comparing their pretest score with their post-test score.

The needs assessment forms were not analyzed for attendance or native language, although these variables are important and could have influenced program succcess. Attendance was not always indicated by the project coordinator/teachers but native language was usually noted. In the Pre-K Program, 2% of the pupil population were identified as Spanish-speaking. In the kindergarten program, 38% of the nonpublic school population were Spanish.

The reader must exercise caution when interpreting the results of the evaluation for several reasons. First of all, the cut-off score for selection into the Title I program was thirteen for kindergarten pupils and fifteen for Pre-K pupils. A kindergarten pupil who obtained a pretest score of twenty-four might be very different from another pupil who scored thirteen. Yet, both kindergarten pupils would have to improve in nine need areas to meet the criteria for program success. Secondly, a pupil may improve over the course of the year due to the maturation process rather than from participation in the program. Also, the classroom teachers must use their own judgement as to what constitutes mastery. This would be especially important if the same teacher did not score the pretest and post-test.

5.2.3 Conclusions

Based on the pretest/post-test analysis of gain scores for the Pre-K/K program, the following conclusions may be drawn.

1. The Pre-K pupils surpassed the performance criteria specified by the Title I Office which indicated that the program was successful in improving the pupils general readiness skills.

2. According to the findings, the majority of the kindergarten pupils in the public and nonpublic schools successfully met the specified performance criteria which measured program success.

5.2.4 Recommendations

1. Detailed directions or guidelines for administering the assessment form should be developed by ORE and implemented the following school year (1981-1982) in order to standardize scoring.
2. Mastery versus needs improvement should be specifically defined in behavioral terms in order to alleviate bias on the part of the scorer.
3. Schools which had a low percentage of pupils achieving the performance objective specified by the Title I Office should be studied during the next school year (1981-1982) in order to make recommendations for program improvement (teacher/pupil ratio, materials, amount and frequency of instruction).
4. Schools which had a high percentage of students achieving the performance objective should be studied during the next school year (1981-82) in order to disseminate successful instructional techniques.
5. A pretest analysis of the assessment form on each of the 24 categories by school would be beneficial to the project coordinator and teachers in developing the Pre-K/Kindergarten Program to meet the specific needs of the participating pupils.

CHAPTER 6

SPECIAL EDUCATION

6.1 Project Narrative

6.1.1 Introduction and Objective

The Newark School District has instructed a substantial number of exceptional pupils in special education programs located in various elementary schools and special education centers throughout the city in 1980-81. Instructional services were tailored to the needs of the handicapped youngsters who have been classified as:

Auditorily Handicapped
Communication Handicapped
Chronically Ill
Emotionally Disturbed
Home Instruction
Multiple Handicapped
Neurologically Impaired
Orthopedically Handicapped
Resource Room Student
Socially Maladjusted
Visually Impaired

With the advent of PL 94-142, handicapped students were required to receive an appropriate education in the least restrictive environment. Title I provided supplementary services to eligible pupils in the area of language experience. The special education component of Newark's Title I program provided remedial services to participating pupils in two kinds of settings, elementary schools and special education centers. The special education student in the elementary school was classified according to the above classification.

As a result of participating in the Title I project, the special education participants receiving remedial services were expected to exhibit better than anticipated progress in achieving those objectives specified in their Individualized Education Plan (IEP).

6.1.2 Student Selection

The special education students met the same eligibility requirements for participation in the Title I program in each school setting (elementary and special education centers). The services of Title I were provided to those special education pupils that resided in an eligible attendance area and scored one year or more below their projected reading level on the California Achievement Test (CAT). Two forms of the 1970 edition of the CAT were used, each of which yielded scores for Reading, Language, and Mathematics.

6.1.3 Number of Students

A total of 1,231 pupils (543 in the elementary schools and 688 in the special schools) were eligible for participation in the Title 1 1980-1981 special education program. This represented 18.86% of the total special education population in the district, not including those who were socially maladjusted or gifted and talented.

6.1.4 Staff

Project coordinators and teachers had to be certified by the state in order to teach special education (area of specialization must match pupil participation in Special Education Centers). Participating special education pupils in the elementary schools were not instructed by project coordinators or teachers, but by regular special education teachers.

Under the direction of the special education teacher and the project coordinator, the teacher aides reinforced previously introduced materials which were prescribed in the participating pupil's Individualized Educational Plan (IEP).

6.1.5 Frequency of Instruction - Adult/Pupil Ratio

The teacher aides spent from 45 to 250 minutes per week instructing each participating student in the language experience area. Remedial instruction occurred in small groups or on an individualized basis five days per week. For the computational skills program, teacher aides spent 45 to 230 minutes per week instructing participating students.

6.1.6 Activities and Materials

All activities and materials were based on the respective student's Individualized Education Plan (IEP). Typical tasks performed by teachers aides included reading stories to Title I pupils, drilling pupils in spelling, assisting teachers in constructing materials and supervising classwork.

6.1.7 Educational Setting

The majority of the special education participants received instruction within their special edcuation classes on an individual or small group basis. The project coordinator or teacher in the special schools provided supplemental instruction in a special classroom or pull-out setting.

6.2 Project Evaluation

6.2.1 Evaluation Design

Special education students participating in Title I were administered the 1970 edition of the California Achievement Test (CAT) in the Spring of 1980 and again in the Spring of 1981. The CAT test battery yields subscale scores for Reading, Language, and Mathematics. As previously mentioned students scoring one year or more below their projected reading level were eligible for Title I assistance.

The CAT is divided into five ability levels from grades 1.5 through 12.0. Each special education teacher selected a level of the CAT appropriate for a particular student. Therefore, all five levels of the CAT may have been administered within one classroom. Project coordinators were responsible for recording students' pretest and post-test information of a standardized form.

Although the special education teachers were free to select the most appropriate California Achievement Test (CAT) for a student's ability level, they failed to record the level of the test administered to the individual pupils. Therefore, there was no way of determining from what grade level of CAT the recorded grade equivalent scores were obtained. Therefore, the evaluation design for the special education Title I programs in reading and math were frequency counts of grade equivalent gain scores. If the objective of Title I assistance was attained, it could have been anticipated that there was a high percentage of positive grade equivalent gain scores that were substantially different from zero.

The grade equivalent gain scores were calculated for each Title I participant in the following way:

Preprojected   Pretested   -   Post-projected   Post-tested
grade level   level   -   grade level   level

These calculations were completed for both the Reading and the Math subscale scores or the CAT.

6.2.2 Findings

Language Experience Program. The frequency distribution of grade equivalent gain scores from the Language Experience Program participants is reported in Table 6.1.

TABLE 6.1

Frequency of Gains for Special Education Students

In the Title I Language Experience Program

California Achievement Test (CAT)

Gain Scores*	Frequency	Percent of Total
-4.0-(4.9)	3	.444
-3.0-(-3.9)	2	.296
-2.0-(-2.9)	35	5.178
-1.0-(-1.9)	228	33.728
0.0-(-.90)	254	37.574
.10- .90	108	15.976
1.0 -1.9	33	4.882
2.0 -2.9	9	1.331
3.0 -2.9	3	.444
4.0 -4.9	0	--
5.0 -5.9	0	--
6.0 -6.9	1	.148
	676	100.000

*Gains are reported in Grade Equivalent Scores

The intervals at which the scores are reported are arbitrary and was selected because the Newark Office of Research and Evaluation (ORE) felt that they reflected the most appropriate results. The frequency distribution of grade equivalent gain scores reported in Table 6.1 were obtained from the CAT Reading subscale. The distribution indicates rather clearly that the objective of the Title I Language Experience Program was not attained. In fact, 71.15% of the gains that were realized by special education pupils were in a negative direction. In terms of statistical significance, probably only the 5 students at the negative end of the distribution realized marked negative change. On the other hand, four students at the positive end of the distribution experienced significantly positive gains from Title I assistance. For the remaining 98.67% of the students scoring from -2.9 to +2.9 it may be concluded that the Title I assistance had no impact.

Computational Skills Program. The results of the frequency distribution of grade equivalent gain scores from the Computational Skills Program participants is reported in Table 6.2. The frequency distribution of the math subscale scores on the CAT, reported in grade equivalent gains, indicated that the remedial assistance provided by Title I had no positive impact on 98% of the Special Education participants. Probably the six students with grade equivalent gain scores of less than -3.0 did significantly worse with the Title I assistance than they would have done without it: the five students scoring above +4.0 did significantly better than would have been expected without the Title I assistance. In general, the objective of the Title I program was not attained by the Special Education students in the Computational Skills Program.

TABLE 6.2

Frequency of Gains for Special Education Students

In the Title I Language Experience Program

California Achievement Test (CAT)

Gain Scores*	Frequency	Percent of Total
-5.0-(5.9)	1	.150
-4.0-(-4.9)	2	.300
-3.0-(-3.9)	3	.451
-2.0-(-2.9)	31	4.655
-1.0-(-1.9)	231	34.685
0.0-(-.90)	241	36.186
.10 -.90	101	15.165
1.0- 1.9	42	6.306
2.0- 2.9	9	1.351
3.0- 3.9	0	--
4.0- 4.9	1	.150
5.0- 5.9	3	.451
6.0- 6.9	1	.150
	666	100.000

*Gains are reported in Grade Equivalent scores

6.2.3 Conclusions and Recommendations

The objective of Title I was not attained for 99% of the special education students in either the Language Experience or the Computational Skills Programs. It is recommended that the reading and mathematics subscales on the

CAT be examined for their content validity with respect to the curriculum objectives for Title I remedial assistance with Special Education students.

For a more definitive assessment of the Language Experience and the Computational Skills Programs, it is recommended that the special education teachers be instructed to record the grade level of the California Achievement Test (CAT) that was administered to each student. If this information had been available, the test scores could have been at least reviewed and summarized according to test level.

Additional inservice training to instruct project coordinators on how to calculate grade equivalent gain scores appears to be needed. None of the 1,342 scores was calculated correctly, and more importantly, 99% of those incorrect calculations overestimated an individual's grade equivalent gain score. Almost every incorrectly calculated gain score was positive, but when correctly calculated, the score came out to be negative. By failing to follow the outlined procedures for calculating gain scores, project coordinators overlooked the fact that reported post-projected grade levels were one grade level more advanced than the preprojected grade levels. Although neither the incorrect nor the correct grade equivalent gain score deviated enough from zero to be regarded as anything other than measurement error, the assumption underlying the reported post-projected grade level needs to be examined. As reported, the post-projected grade levels expect the progress of special education students to keep pace with the grade level progress of normal students. If this is not a valid assumption to make, then the post-projected grade level for the speical education students was overestimated, which contributed to the negative change being reported in Table 6.1 and 6.2.

CHAPTER 7

EDUCATION CENTER FOR YOUTH

7.1 Project Narrative

7.1.1 Introduction and Objective

The program at the Education Center for Youth was developed to provide remedial services on an ungraded secondary format. Upon completion of the program, pupils were to receive a Newark Board of Education diploma. Each Student had a tailored program which was designed to fulfill course requirements necessary for graduation. The Center operated a work/study program which functions on a staggered schedule. The pupils were divided into two groups; one group attended school for a week, while the other groups received on-the-job-training. Arrangements for the training were made through the Center.

The Newark School District through Title I provided remedial services in area of Language Experience to eligible pupils at the Education Center. The Title I students participaing in the Language Experience Project, identified as having a need in reading comprehension and word knowledge, were to show significant improvement in the above stated areas as measured by the Comprehensive Test of Basic Skills (CTBS) which was administered in May 1980 and 1981.

7.1.2 Student Selection

The pupils were selected for participation in the 1980-81 Title I program on the basis of their pretest scores on the Metropolitan Achievement Test

(MAT) and Comprehensive Test of Basic Skills (CTBS), as administered in May 1980. The CTBS was designed to measure basic skills and was standardized on a wide variety of students. The CTBS yielded scores for the following areas:

1. Reading (Vocabulary, comprehensive, total).
2. Language (mechanics, expression, spelling, total).
3. Arithmetic (computation, concepts, application, total).
4. Study Skills (reference materials, graphic materials, total)

Two forms of the CTBS and four levels were used. Appropriate levels of the test were administered to the pupils. The criteria for selection into the Title I program at the Education Center for Youth was based on each pupil's assessed reading level as determined by a May 1980 administration of either the MAT or CTBS. Those pupils one year or more deficient in reading according to their projected grade level were selected into the Title I program.

7.1.3 Number of Students

As of September 1980, forty-six pupils were selected for participation in the Title I Language Experience Program at the Education Center for Youth.

7.1.4 Staff

The Title I program was staffed by one project coordinator/teacher who was responsible for Title I administrative duties as well as providing remedial instruction.

7.1.5 Frequency of Instruction

According to the project proposal the Title I participants received between 90 and 250 minutes of reading instruction on alternate weeks (due to the work/study program). The project coordinator/teacher instructed the class as a group approximately ten minutes a day, the remaining class time is used for small group or individual instruction.

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7.1.6 Activities and Materials

The project coordinator/teacher utilized the following instructional materials in the Title I language experience and reading programs:

Flash Cards	Programmed Cassette Lessons
Overhead Projector	Programmed Workbooks
Junior and Senior Controlled Reader	Teacher-made Materials

7.1.7 Educational Setting

Title I remedial instruction took place in a pull-out setting.

7.2 Project Evaluation

7.2.1 Evaluation Design

To assess the effectiveness of the Title I program at the Education Center for Youth, the one group pretest/post-test design (described in Appendix A) was employed. Appropriate levels of the Comprehensive Test of Basic Skills (CTBS) were administered to the students in May 1980 and 1981. Since the students were placed in ungraded classes, the test scores were analyzed and summarized according to test level. The mean score of the pre-intervention assessment conducted in May 1980 was calculated and compared with the mean score of the post-intervention assessment conducted in May 1981. The *t*-test was used to determine whether there was statistically significant differences between the pretest and post-test means.

7.2.2 Findings

Exmaination of Table 7.1 indicates that the means for the forty-eight students in the sample were equal to 513.36 on the pretest and 548.17 on the post-test for the total reading score; the standard deviations were 52.45 and 95.44 respectively. With 47 degrees of freedom, the required value of *t* is

2.02 and 2.70 at the .05 and .01 levels. The obtained value of t was 2.21, indicating that there was a significant difference between pretest and post-test at the .05 level. Therefore, it can be concluded that the Title I Program has attained its objective in improving the total reading scores of youngsters at the Education Center for Youth significantly.

TABLE 7.1

Pretest and Post-test Means and

Standard Deviations for Reading Subtests

	N	Pretest Mean	S.D	Post-test Mean	S.D	Value of t
W. K.	48	525.98	60.54	548.13	101.87	1.30
R. C.	48	500.73	60.61	548.17	101.14	2.78*
T. R.	48	513.36	52.45	548.17	95.44	2.21*

* Statistically significant at .05 level

W. K. = Word Knowledge
R. C. = Reading Comprehension
T. R. = Total Reading

Table 7.1 also provides the means and standard deviations for each of the two subtests, word knowledge and reading comprehension. For word knowledge the means were 525.98 on the pretest and 548.13 on the post-test; the standard deviations were 60.54 and 101.87 respectively. With 47 degrees of freedom the required value of t is 2.02 and 2.70 at the .05 and .01 levels. The obtained value of t for word knowledge was 1.30, indicating that there was no statistically significant difference between the pretest and post-tests. The Title I Program, therefore, did not attain its objective for word knowledge.

An examiniation of Table 7.1 reveals that the means for reading comprehension were 500.73 and 548.17 on the pretest and post-test respectively; the standard deviations were 60.61 and 101.14. With 47 degrees of freedom, the required value of t is 2.02 and 2.70 at the .05 and .01 levels. The obtained value of t for reading comprehension was 2.78, indicating that there was a statistically significant difference between the pretest and post-test at the .01 level. It was, therefore, concluded that the Title I Program had attained its objective for reading comprehension.

7.2.3 Conclusions and Recommendations

In general, the Title I Program at the Education Center for Youth attained its objective of improving student performance in reading significantly. When the subtests of reading were examined separately, it was found that the program also attained its objective in the area of reading comprehension. However, it fell short of meeting its objective in the area of word knowledge. It is recommended that Title I instruction in this area be examined and, if necessary, additional resources should be reallocated to improve student performance in word knowledge.

CHAPTER 8

PROJECT LINK

8.1 Project Narrative

8.1.1 Introduction and Objective

Project LINK, a special program for potential dropouts, was developed to offer an alternative to traditional junior high school. Project LINK, affiliated with the Sisters of Saint Dominic, was offered to students in public schools. The program was designed to develop the capabilities of the underachiever, who might otherwise dropout of school. Project LINK offered a strict traditional curriculum. The Newark Title I program provided supplementary remedial services in the area of reading and math to eligible pupils in the sixth, seventh and eighth grades. According to the project proposal, students receiving remedial reading and math instruction for nine months in the program were expected to show significant improvement in the above areas as measured by the Metropolitan Achievement Test (MAT), administered in May 1980 and again in May 1981.

8.1.2 Student Selection

The same selection criteria for Title I participation applied to Project LINK Students. Table 8.1 illustrates the criteria applied for selection into the Title I program at each grade level. Pupils were also selected for participation into the school on the basis of their leadership and intellectual ability.

8.1.3 Number of Students

Seven students in grade 6, twenty-one students in grade 7, and sixteen students in grade 8 were eligible for participation in the 1980-81 Title I program as of September 1980. Fifty percent of the pupils attending Project LINK participated in the Title I program.

TABLE 8.1

Cut-off Score and Number of Eligible Pupils at Each Grade Level

Grade	Test Level	Cut-off Score	No. of Eligible Pupils
6	MAT Elem.	67	7
7	MAT Inter.	75	21
8	MAT Inter.	79	16
	Total		44

8.1.4 Staff

The Title I staff at Project LINK consisted of one project coordinator/teacher and one teacher aide. The project coordinator/teacher performed Title I administrative duties as well as instructing Title I pupils. The teacher aide reinforced previously introduced material.

8.1.5 Frequency of Instruction

According to the project coordinator, the Title I aide provided approximately 100 minutes a week of supplemental instruction to each Title I participant in the area of reading. For those pupils participating in the Title I math program, the project coordinator/teacher provided 100 to 150 minutes of instruction weekly.

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8.1.6 Educational Setting

Remedial instruction occured in both the regular classroom and pullout setting at Project LINK. The teacher aide provided assistance to Title I pupils in a 6th grade classroom for two periods a day. For the remaining portion of the day, the teacher aide assisted a Project LINK's reading teacher to reinforce previously introduced material in the area of language experience. This occurred in a pull-out setting.

8.2 Project Evaluation

8.2.1 Evaluation Design

The evaluation was designed to assess the progress of those pupils receiving supplemental instruction in the area of Language Experience and Computational Skills. Although the pupils were pretested and post-tested with the appropriate levels of the Metropolitan Achievement Test MAT (May 1980 and May 1981), a Model C analysis was not implemented due to the nature and size of the school and the lack of a control group. A *t*-test for correlated means was used to determine whether gains made between pretesting and post-testing were significant. Only the results of the Language Experience component were reported. It was therefore not possible to analyze the Computational Skills component.

8.2.2 Findings

Only the word knowledge and reading comprehension subtests of the Total Reading subscale on the MAT were reported for evaluation. These were pretest and post-test scores available for seven sixth grade, nineteen seventh grade, and sixteen eighth grade Title I participants in Project LINK. The results of the correlated *t*-test between these students pretest and post-test word knowledge and reading comprehension standard scores are reported in Table 8.2.

Pretest scores refer to the results of the Spring 1980 testing and post-test scores refer to those of the Spring 1981 testing. The discussion of the findings for grade levels is provided below for the word knowledge and reading comprehension subtests of the MAT.

Word Knowledge. The performance from pretesting to post-testing for the seventh grade students was significantly better than their performance one year earlier on the pretest. The performance of the sixth and eighth graders on the post-test was not significantly better than their performance before Title I assistance. Therefore, the objective of Title I was not attained for the sixth and eighth graders in word knowledge, but was attained by the 19 seventh graders.

Reading Comprehension. The seven sixth graders in Project LINK did significantly better on the post-test than they did on the pretest. The performance of the seventh and eighth graders was not different enough on the post-test to be considered a significant improvement over their pretest performance. Therefore, the objective of Title I was attained for the sixth graders in reading comprehension, but not for the seventh and eighth graders.

8.2.3 Conclusions and Recommendations

Because the eighth graders failed to do significantly better on either subtest of the MAT, the Title I objectives were not attained for these 16 participants in Project LINK. It is not possible to make such an overall statement about the gains of the sixth and seventh grade students in the same program. Neither grade did significantly better from pretesting to post-testing on both subtests. For example, the sixth graders did significantly better from pretest to post-test in reading comprehension, but not in word knowledge. On the other hand, the seventh graders did significantly better in word knowledge, but not in reading comprehension.

TABLE 8.2

Correlated *t*-test for Title I Students in Project LINK on the Metropolitan Achievement Test (MAT) Word Knowledge and Reading Comprehension Subtests

Grade Level	Number of Participants	Pretest Mean (S.D.)	Post-test Mean (S.D.)	Degrees of Freedom	*t*-value
		Word Knowledge			
6	7	65.71 (5.92)	69.85 (3.44)	6	1.64
7	19	70.53 (4.41)	74.21 (7.39)	18	2.38[1]
8	16	74.00 (6.28)	75.38 (6.28)	15	1.33
		Reading Comprehension			
6	7	63.85 (5.11)	73.00 (3.33)	6	4.38[1]
7	19	68.74	70.21	18	0.61
8	16	72.81 (4.75)	74.38 (6.81)	15	0.57

[1] $p < .05$ (one-tailed)

It is uncertain as to why the differences appeared for one grade on each of the different subtests, and did not appear for the eighth graders at all. However, there are many factors that affect student performance for which we can not account. Among these factors are a student's past educational history, the out of school environment of the student, the number of absences, and the general morale of the whole Project LINK staff. The performance on the MAT is also affected by whether the test measured a representative sample of the intended learning outcomes of the Title I program. That is, different grade levels may have emphasized different objectives which happened to be sampled more directly on the subtest of the MAT. Unless selection of the Title I objectives and teaching materials was done with the item content of the 1970 edition of the MAT taken into consideration, the correspondence between the content of the Title I program and the content of the test items is likely to be different. In effect, it could be argued that the objectives of the sixth grade reading comprehension were being measured by the MAT, but the objective for the seventh and eighth grades were different and thus not measured by the MAT. It is our recommendation that the content validity of the MAT subtests be examined in terms of the expectation of the Title I Program for each grade level in Project LINK.

CHAPTER 9

NEGLECTED AND DELINQUENT STUDENT SERVICES

The Newark School District, under the Title I program, provided supplemental educational services to institutions serving Essex County's neglected and delinquent children. The institutions included Essex County Youth House, Girls Center, and Essex County Jail. The population was generally transitory, the length of stay often depending on factors outside education; e.g., court decisions and placements. Each of these institutions was evaluated seperately.

Essex County Youth House

9.1 Project Narrative

9.1.1 Introduction and Objectives

Essex County Youth House was developed as a co-educational juvenile detention center which retains youngsters accused of committing crimes ranging from trespassing to homocide while they await court decisions. The juveniles served by this program were usually between the age of eight and seventeen years. The number of juveniles incarcerated at the Youth House at any one point in time varied, and the average length of stay at the institute was twenty to thirty days, although the range was from one day to eight months.

The county provided an ungraded educational program for the juveniles, and the Newark Title I program supplemented the existing educational program in the area of language and math. The neglected and delinquent Title I project participants receiving these services were expected to exhibit better than anticipated growth in their test scores as shown through two administrations of the Wide Range Achievement Test (WRAT).

9.1.2 Student Selection

The nature of the Neglected and Delinquent (N & D) pupils made it difficult to obtain standardized test scores on which to base selection decisions for participanting in the Title I program. To alleviate this problem, the Youth House informally administered the Wide Range Achievement Test (WRAT) to each juvenile. Not only did the WRAT serve as a criteria for selection, but it was also used for diagnostic purposes. The WRAT provided a rough estimate of the pupil's general level of ability. Two levels of the WRAT for reading and math (Level I - ages 5 to 11; Level II - ages 12 and over) were used. The instrument was administered on an individual basis, and the latest revision (1978) yielded three scores, one in each of the following areas: spelling, arithmetic, and reading. The appropriate level of the reading section of the WRAT was administered to the pupils.

9.1.3 Number of Students

Sixty-three pupils were selected for participation in the Title I program as of October 1980.

9.1.4 Staff

The staff at the Youth House consisted of one project coordinator/teacher and three project teachers. The project coordinator/teacher performed Title I administrative duties one-half a day per week, the remaining portion of time was devoted to instructing Title I participants in the area of language and math.

9.1.5 Frequency of Instruction/Teacher Pupil Ratio

The average class size ranged from five to fourteen pupils, with an average teacher/pupil ratio of one to ten. According to the project coordinator, the Title I pupils received approximately ninety minutes or more of instruction in language and math per day.

9.1.6 Activities and Materials

According to the project coordinator, the following areas were emphasized in the Title I project: reading comprehension, vocabulary, listening skills, verbal expressions, creative writing, grammar, spelling, and basic math skills. Remedial services and instruction was provided through a variety of topics in an attempt to capture and keep the attention of the unique population at the Youth House. Topics included literature, survival skills, black history, health, creative writing, current events and geography.

9.1.7 Educational Setting

Remedial instruction in the basic skills occured on an individual basis, within the classroom setting.

9.2 Project Evaluation

9.2.1 Evaluation Design

An informal administration of the WRAT was given to the juveniles upon arrival, and those pupils with both pretest and post-test scores were included in the evaluation. The neglected and delinquent pupils were grouped in ungraded classes according to their assessed reading level, thus the test scores were reviewed and summarized according to test level.

9.2.2 Findings

The project coordinator at the Youth House reported only Total Reading scores on the WRAT for two groups tested in the Spring of 1980 and the Spring of 1981. However, these two sets of scores did not represent pretest and post-test scores for the same group of Title I participants. Instead, the Spring of 1981 scores were obtained from 47 different students than the 67 students tested in the Spring of 1980. Because, pretest data were reported for two distinct groups, there was no possible way to carry out an evaluation of the progress from pretesting to post-testing. Therefore, it could not be ascertained whether Title I participants attained the Title I objective.

9.2.3 Conclusions and Recommendations

Because of the transitory nature of the Title I participants in this Program, it was not possible to obtain complete sets of pretest and post-test data to conduct any meaningful statistical analysis. For future evaluation, the Office of Research and Evaluation recommends that a different evaluation design consistent with the nature of the program be developed and implemented.

9.3 Girls Center

9.3 Project Narrative

9.3.1 Introduction and Objective

The Girls Center was developed as a residential site for neglected girls. Here young women are temporarily held awaiting court action returning them to their home, or placing them in a foster home. The age of the girls ranged from thirteen to eighteen years. The Girls Center provided an educational program which consisted of two special education classes. The Newark Title I program provided funds to the Girls Center in the following way: forty-five percent (45%) - tutorial assistance, forty percent (40%) - field trips, and fifteen percent (15%) - miscellaneous.

The neglected and delinquent Title I project participants receiving remedial service were expected to exhibit better than anticipated growth in their test scores as shown through a May 1980 and May 1981 administration of the California Achievement Test (CAT).

9.3.2 Student Selection

The services of Title I were provided to those pupils that resided in an eligible attendance area and scored one year or more below their projected reading level as measured by the California Achievement Test (CAT). The same criteria for participant selection applied at the Girls Center as it did for the Special Education component of Title I. The pupils were placed in the Title I program on the basis of their scores obtained on a May 1980 administration of the CAT.

9.3.3 Number of Students

According to the educational director, all residents were eligible for Title I participation although standardized test scores were not available to the Office of Research and Evaluation (ORE). Nineteen pupils were selected for participation in the Title I program. Of this number, fifteen of the girls attended class within the institution and four girls were enrolled in other projects.

9.3.4 Staff

A part-time tutor was assigned to the Center in order to provide remedial services and supplement the existing educational program.

9.3.5 Frequency of Instruction- Teacher Pupil Ratio

The tutor was assigned to the Center three days a week, two hours per session. Instruction occurred on an individual basis or in small groups according to each pupil's needs. Those pupils attending school outside the institution were encouraged to visit with the Center's social worker and education director.

9.3.6 Activities and Materials

Activities were specified by the classroom teacher according to the pupil's need.

9.3.7 Educational Setting

Instruction occurred on an individual or small group basis according to each pupil's need as defined by the classroom teacher.

9.4 Project Evaluation

9.4.1 Evaluation Design

Appropriated levels of the CAT were administered to all Newark's Special Education population in both May 1980 and May 1981. Students from the Girls Center took the test but only those with both pretest and post-test scores were included in the evaluation. The test scores were to be reviewed and sumamrized according to test level.

9.4.2 Findings

The data submitted to ORE did not lend itself to any meaningful analysis. It, therefore, could not be ascertained whether the Title I Program at the Girls Center has attained its objective.

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9.4.3 Conclusions and Recommendations

From a review of the data submitted to ORE, it is apparent that the part-time tutor did not provide the continuity to the program that was necessary to provide accurate information for evaluation. If the Title I evaluation is to be carried out at the Girls Center, our recommendation is that someone at the Center be responsible for recording the participant's CAT scores.

Essex County Jail

9.5 Project Narrative

9.5.1 Introduction and Objective

Through the Newark Title I program, remedial services were provided to the juveniles incarcerated at Essex County Jail. For the first time this year (1980-1981), those juveniles accused of committing a major felony were sent to the jail from Essex County Youth House after their arraignment. There they were confined until they received sentencing from the court. The average length of stay at the jail was from six to eight months. An education program was provided by the county in order to instruct the juveniles in basic skills. The county staff consisted of one teacher/principal. The neglected and delinquent Title I project participants receiving remedial services for nine months, were expected to exhibit better than anticipated growth in their test scores as measured by two administrations of the Wide Range Achievement Test (WRAT).

9.5.2 Student Selection

The same criteria for participant selection occurred at Essex County Jail as it did at the Youth House.

9.5.3 Number of Students

As of February 1981, six out of eight juveniles incarcerated at the jail were eligible for Title I participation.

9.5.4 Staff

The Newark Title I program supplemented the existing program by providing the services of one project teacher. The project teacher provided individualized instruction to each Title I participant in reading and math.

9.5.5 Frequency of Instruction/Teacher Pupil Ratio

According to the county teacher/principal, the Title I participants received approximately 45 minutes a day instruction in reading and math, five days per week. The teacher/pupil ratio was approximately one to six.

9.5.6 Activities and Materials

Emphasis was placed on teaching the basic skills on an individual basis according to the teacher's assessment of each pupil's needs. No instructional material was provided by Title I.

9.5.7 Educational Setting

The juveniles, by law, must be kept separate from the adult inmate population, and since space at the institution was limited, the juveniles received instruction in a small area of the library which was isolated by partitions.

9.6 Project Evaluation

9.6.1 Evaluation Design

An informal administration of the WRAT was given to the juveniles at the Youth House before the arraingment. Those participants with both pretest and post-test scores obtained after incarceration were included in the evaluation. A correlated t-test was used to determine if performance on the post-test was significantly different from performance on the pretest.

9.6.2 Findings

The project teacher for the Essex County Jail submitted pretest and post-test grade equivalent scores on the Reading subscale of the WRAT only for four of the six students participating in the Title I program. Although the test levels administered and the age of the students were not submitted along with the grade equivalent scores, ORE assumed that the same test level was administered and assigned each of the four students the age of 16. Sixteen was selected because the project description defined the average age of the participants to be between 16 and 17.

The mean of the pretest standard scores was 76.25 and the mean of the post-test standard scores was 80.25. Although the post-test mean was larger than the pretest mean, the observed difference was not significant, t (3)=1.89 $p > .05$. Therefore, we conclude that the Title I objective for these four students was not attained.

9.6.3 Conclusions and Recommendations

There are many factors that affect a student's performance on a standardized test in addition to the remedial assistance provided by the Title I program. Among these are past educational history, the quality and adequacy of the instructional materials with which the teacher has to work, and the out-of-class environment of the participants. Title I participants that are incarcerated are not under the influence of an environment that is helpful to learning.

In order to effectively assess the program with respect to the objective of Title I, it is recommended that more comprehensive data should be submitted for evaluation. This data should include the project teacher reporting reading and math scores for both pretest and post-tests. Without this information, findings regarding the effectiveness of the Title I program were at best tenuous.

CHAPTER 10

STUDENT PERFORMANCE IN NONCOGNITIVE AREAS

10.1 Project Narrative

10.1.1 Introduction

As part of the evaluation of the Newark Title I Program, the Office of Research and Evaluation undertook the task of assessing students performance in the noncognitive areas. These areas include maturation, attentiveness, concentration, perception, need of vision/auditory services, need of dental/medical services, need of speech and social services, need of nutrition services, need of attendance services and cultural awareness. The noncognitive areas vary across programs, as well as within programs. For instance, the noncognitive areas for the Language Experience Program may not be the same as those for Computational Skills or Special Education. Similarly the noncognitive areas vary from grade level to grade level within a particular program.

The Newark School District established a performance objective for its Title I students, which indicated that there would be a statistically significant increase in student performance in the noncognitive areas between a pretest and post-test assessment. To assess the attainment of this objective, the Title I Office, in compliance with N.J. State Department of Education (SDE) mandate to evaluate the noncognitive areas, developed an instrument to assess students' performance in each of the above noncognitive areas.

10.2.1 Evaluation Instrument

An instrument was developed for each of the major programs. It consisted of two major categories:

1. Affective and Psychomotor Needs, and
2. Health and Social Needs.

The variables identified above were subcomponent of each of the two major categories. Each variable was rated on a 5-point Likert Scale for both the preassessment and post-assessment. These ratings were as follows:

1. Very Poor. That degree of development which is noticeably less than that found in children of comparable chronological age and school experience.
2. Poor. That degree of development which is less than that found in children of comparable chronological age and school experience.
3. Good. That degree of development usually found in children of comparable chronological age and school experience.
4. Very Good. That degree of development which exceeds that usually found in children of comparable chronological age and school experience.
5. Excellent. That degree of development which significantly exceeds that found in children of comparable chronological age and school experience.

Based upon the observation of students performance, the project teacher conducted two independent ratings of each student performance in the noncognitive areas. The first rating, known as the preassessment of student performance, was completed in October 1980. After the Title I remedial instruction, a second rating (post-assessment rating) was completed for each student in May

1981. The difference between the preassessment and post-assessment ratings represented the gain of the student which may be attributable to the effects of the Title I Program or other intervention techniques. It must be pointed out here that Newark Title I Program did not have a major instructional thrust in the noncognitive development of the students. Services in this area were significantly limited due to fical restraints.

Based upon past experience in program evaluation and the heterogeneity of the Newark Title I population, it was decided to select a stratified random sample with proportional allocation to each noncognitive area. The sampling fraction (the ratio of sampling size to the population size) was .63 and it was further broken down by grade levels and program areas. This stratified random sample was carefully chosen to reflect a real situation providing valid estimates of sampling variability and to make authentic statistical inferences about the data collected.

In interpreting the data, the following were taken into consideration:

a. the data represents highly subjective judgements on the part of those who completed the rating;

b. those who conducted the rating had very little, if any, training to do so by the Central Office;

c. raters were not provided with operational definitions of the variables to be rated. This factor might have had an effect on the overall reliability of the teachers making the rating.

10.1.3 Evaluation Design

The basic design to evaluate the noncognitive data was a pretest/post-test design. As indicated earlier, an instrument to assess noncognitive growth was developed by the Title I Office for each major component of the Title I

Program - Language Experience, Computational Skills, Program for English Proficiency and Special Education Components. The means and standard deviations of the preassessment, which was conducted in October, 1980, were calculated and compared to those on the post-assessment of May, 1981. To determine students growth on the post-test over the pretest, the pretest means were subtracted from the post-test mean to assess the noncognitive gains. To determine whether there were statistically significant differences between the pretest and post-test means, an F ratio was calculated to determine the homogeneity of variances and the separate variance model of the t-test was employed to analyze the means.

10.1.4 Findings

Table 10.1 presents the summary data of noncognitive developmnent for the entire school district. The table reveals that there has been significant noncognitive gains (N = 38,701, t = 4.36; p < .005) for both the public and nonpublic schools for all grade levels. The total noncognitive gain for the entire school district is 0.51 of one point on a 5-point Likert scale. The noncognitive gains varied across programs and grade levels and for this reason, the results are presented by program and grade level.

Language Experience Program. The overall noncognitive gains for the Language Experience program ranged from a low of 0.33 in third grade to 0.83 in the ninth grade. Most noncognitive gains clustered around 0.51 which is the average for the entire school district. Even though there were some noncognitive gains for grade 8, this gain was not statistically significant. In the remaining grade levels, there was statistically significant improvement in general (t = 2.07; p < .05). The noncognitive objective for the language Experience Program was therefore attained.

TABLE 10.1

Analysis of Non-Cognitive Data by Instructional Areas & Grade Levels

GRADES	1				2				3				4				5			
INSTRUCTIONAL AREA	N	Pre $\bar{X}$	Post $\bar{X}$	G	N	Pre $\bar{X}$	Post $\bar{X}$	G	N	Pre $\bar{X}$	Post $\bar{X}$	G	N	Pre $\bar{X}$	Post $\bar{X}$	G	N	Pre $\bar{X}$	Post $\bar{X}$	G
Language Experience																				
Public	2207	2.40	2.86	0.50	1324	2.42	2.91	0.49	2655	2.38	2.71	0.33	3486	2.25	2.77	0.52	2691	2.55	2.97	0.42
Non-Public	232	2.19	2.75	0.56	147	2.25	2.78	0.53	269	2.30	2.66	0.36	240	2.25	2.30	0.05	268	2.37	2.74	0.37
Computational Skills																				
Public	2083	2.37	2.83	0.46	1037	2.45	2.93	0.48	2255	2.20	2.83	0.63	2435	2.22	2.73	0.51	1918	2.36	2.93	0.57
Non-Public	172	2.35	2.79	0.44	84	2.68	3.26	0.58	144	2.27	2.68	0.41	160	2.30	2.68	0.38	204	2.72	2.69	0.03
Program for English Speaking Proficiency																				
Public	879	2.65	3.24	0.59	432	2.67	3.41	0.74	488	2.67	3.25	0.59	472	2.81	3.42	0.61	405	2.70	3.31	0.61
Non-Public	80	2.54	2.81	0.27	*	*	*	*	*	*	*	*	24	2.58	2.63	0.05	24	2.71	2.50	0.21
Special Education	34	2.67	2.92	0.25	36	2.50	2.69	0.19	32	2.03	2.75	0.72	28	2.14	2.79	0.65	12	2.50	2.50	0.0
1. Language Experience	24	2.33	2.75	0.42	28	2.50	2.67	0.17	20	2.50	2.65	0.15	16	2.44	2.63	0.19	8	2.50	2.50	0.0
2. Computational skills	10	2.17	2.75	0.58	8	2.50	2.75	0.25	12	2.50	2.75	0.25	12	1.75	3.00	1.25	4	2.50	2.50	0.0
Overall Non-Cognitive Gains	5687	2.42	2.90	0.48	3060	2.44	2.99	0.55	5843	2.33	2.80	0.47	6845	2.28	2.78	0.50	5522	2.49	2.96	0.47

N=number of subjects taking pre and post-test; G=non-cognitive gains; X-mean score

*No data available for these grade levels

TABLE 10.1 (Continued)

Analysis of Non-Cognitive Data by

Instructional Areas & Grade Levels

GRADES	6				7				8				9			
		Pre	Post			Pre	Post			Pre	Post			Pre	Post	
INSTRUCTIONAL AREA	N	$\bar{X}$	$\bar{X}$	G	N	$\bar{X}$	$\bar{X}$	G	N	$\bar{X}$	$\bar{X}$	G	N	$\bar{X}$	$\bar{X}$	G
Language Experience																
Public	2403	2.44	2.98	0.54*	1698	2.57	3.09	0.52	951	2.68	3.16	0.48	1709	2.76	3.59	0.83
Non-Public	272	2.14	3.31	1.17	108	2.72	3.14	0.42	48	2.60	2.90	0.30				
Computational Skills																
Public	1992	2.39	2.95	0.56	1261	2.60	3.00	0.40	769	2.61	2.98	0.37				
Non-Public	204	2.36	3.42	1.06	128	2.76	3.08	0.32								
Program for English Speaking Proficiency																
Public	153	3.51	4.02	0.51												
Non-Public	20	3.15	3.3	0.15												
Special Education	16	2.38	3.00	0.62	12	2.17	2.58	0.41								
1. Language Experience	8	2.50	3.00	0.50	8	2.25	2.63	0.38								
2. Computational skills	8	2.25	3.00	0.75	4	2.00	2.50	0.50								
Overall Non-Cognitive Gains	5060	2.44	3.04	0.60	3207	2.59	3.05	0.46	1768	2.65	3.08	0.43	1709	2.76	3.59	0.83

N=number of subjects taking pre and post-test; G=non-cognitive gains; X-mean score

*No data available for these grade levels

A further analysis of the noncognitive data for the Language Experience Program is described in Appendix D. An examination of the noncognitive gains by category reveals that the greatest overall gains were at the ninth grade level. These gains were made in maturation, followed by eye-hand coordination, form perception and visual auditory. Low performance in these areas occurred only among the first and second grade students. These psychomotor areas were not included in the rating instrument for the other grades. Thus it was not possible to make a trend analysis across grade levels.

A comparison between the public schools and the nonpublic schools revealed a striking difference in noncognitive growth. For public school children in the Language Experience Program, the data indicated that noncognitive growth increased with the grade level with the greatest gains in the ninth grade. In the nonpublic schools the greatest noncognitive gains were evident in the lower grades and, with the exception of grade six, decreased as the grade level increased. For nonpublic schools there was no noncognitive gain for attendance services in grade eight. In general, the only statistically significant noncognitive gains made at the sixth grade level were in maturation, concentration, social services, and cultural awareness. In all, noncognitive objective of the Language Experience Program for nonpublic schools was not attained.

Computational Skills. Noncognitive growth in the area of Computational Skills fluctuated from grade to grade. It ranged from a low of 0.40 in grade seven to 0.63 in grade three. With the exception of noncognitive gains in grade eight, noncognitive gains in other grade levels were statistically significant. In general, the Newark Title I Program has attained its noncognitive objective in the area of Computational Skills.

A more detailed analysis of noncognitive growth for both the public and nonpublic schools is offered in Appendix D. For the public schools, there was negative growth (-0.22) in the area of concentration at the first and second grade levels (t-2.61), $p < .05$: and $t = 2.92$; $p < .05$) and in all cognitive areas at the third, fifth and sixth grade levels. No statistically significant growth occurred at the eighth grade level.

As it can be seen in Appendix D the nonpublic schools did not make any overall significant growth. On the contrary, negative change occurred at the fifth grade level in Speech and Cultural Awareness. This factor is sharply contrasted with the noncognitive growth of the sixth grade, the only one for which statistically significant gains are reported. The noncognitive growth also sharply declines in the seventh grade. There seems to be no logical explanation for this irregularity in noncognitive growth in the nonpublic schools. It is possible that this irregularity may be due to subjective teacher ratings, or to a small sample size in which the means are not stable.

Special Education. In the Special Education component of the Title I Program, the objective of significant noncognitive gains was not attained. Noncognitive gains for the entire school district in both the Language Experience Program and in Computational Skills ranged from 0 to 0.72. The greatest noncognitive growth occurred at the third grade level while there was no growth reported for the fifth grade level. From the data available, it seemed that there may be some inconsistency in the pattern of noncognitive growth from one grade level to another. For example, at the third grade level, noncognitive growth was 0.72, at the fourth grade level it was 0.65. However, at the fifth grade level it went down to 0 while it increased to 0.62 at the sixth grade level. This may be due to a number of factors and it is difficult to speculate what may be the cause.

When the noncognitive growth of the two major components of Special Education was analyzed by (Language Experience and Computational Skills), the results were similar to what is reported above. The only differences that was evident from the data reported was a statistically significant gain in noncognitive growth for grade four in both Language Experience and Computational Skills. Significant gains were also reported for all noncognitive categories for grade one in Computational Skills (see Appendix D).

Program for English-Speaking Proficiency. Data for noncognitive growth in the Program for English Proficiency (PEP) was collected for grades one through six. From an examination of Table 10.1, it is evident that the objective for noncognitive gains for this program was not achieved. Even though there was noncognitive gains for all grade levels (1-6) in the public schools, the gains were not statistically significant. They range from 0.51 in grade six to 0.74 in grade two. Thus the noncognitive growth in the Program for English Proficiency was about the same or above the average noncognitive gain (0.51) for all Title I student in Newark School district.

The noncognitive growth for Title I PEP students in nonpublic schools was not as good as those in the public schools. Gains for the nonpublic schools ranged from 0.21 in grade 5 to 0.27 in grade 6. No data were reported for grades 2 and 3. An examination of Appendix D reveals that there is no statistically significant gains in any of the noncognitive categories at all grade levels.

10.1.5 Conclusions and Recommendations

From the analysis of the noncognitive data, it was found that the overall noncognitive growth for Title I students in Newark school district was statistically significant. Therefore, the school district has attained its objective in improving Title I students' noncognitive growth on the post-test over the pretest. While the school district has attained its noncognitive object as a whole, not all of the Title I Projects were able to do so. The Language Experience Program and Computational Skills Project achieved their noncognitive objectives through grade seven. Only in the Language Experience Program was the objective achieved through all grade levels.

In the Language Experience and Computational Skills Projects of the nonpublic schools, the noncognitive objective was not achieved in general. However, they were achieved for one grade level (grade 5) in the area of Language Experience. In addition, there was negative noncognitive change at the fifth grade level in the area of Computational Skills.

Further analysis of the noncognitive data revealed that the noncognitive objective in general was not attained in the area of Special Education. In many noncognitive categories there was no gain at all. However, the noncognitive objective was attained by first grade students in the area of Computational Skills.

For the English Proficiency Program (PEP) the noncognitive objective was attained by neither the public schools nor the nonpublic schools. In fact, the nonpublic schools reported negative change in attendance and nutrition at the fifth grade level.

From the anlaysis of the noncognitive data, it was found that the least noncognitive growth was made in the psychomotor domain. In this domain were dental and medical needs, vision and hearing needs, auditory association and nutritional needs. It is strongly recommended that the psychomotor domain of the Newark Title I Program be re-examined and additional resources be allocated to improve student growth in this domain.

CHAPTER 11

PARENTAL INVOLVEMENT

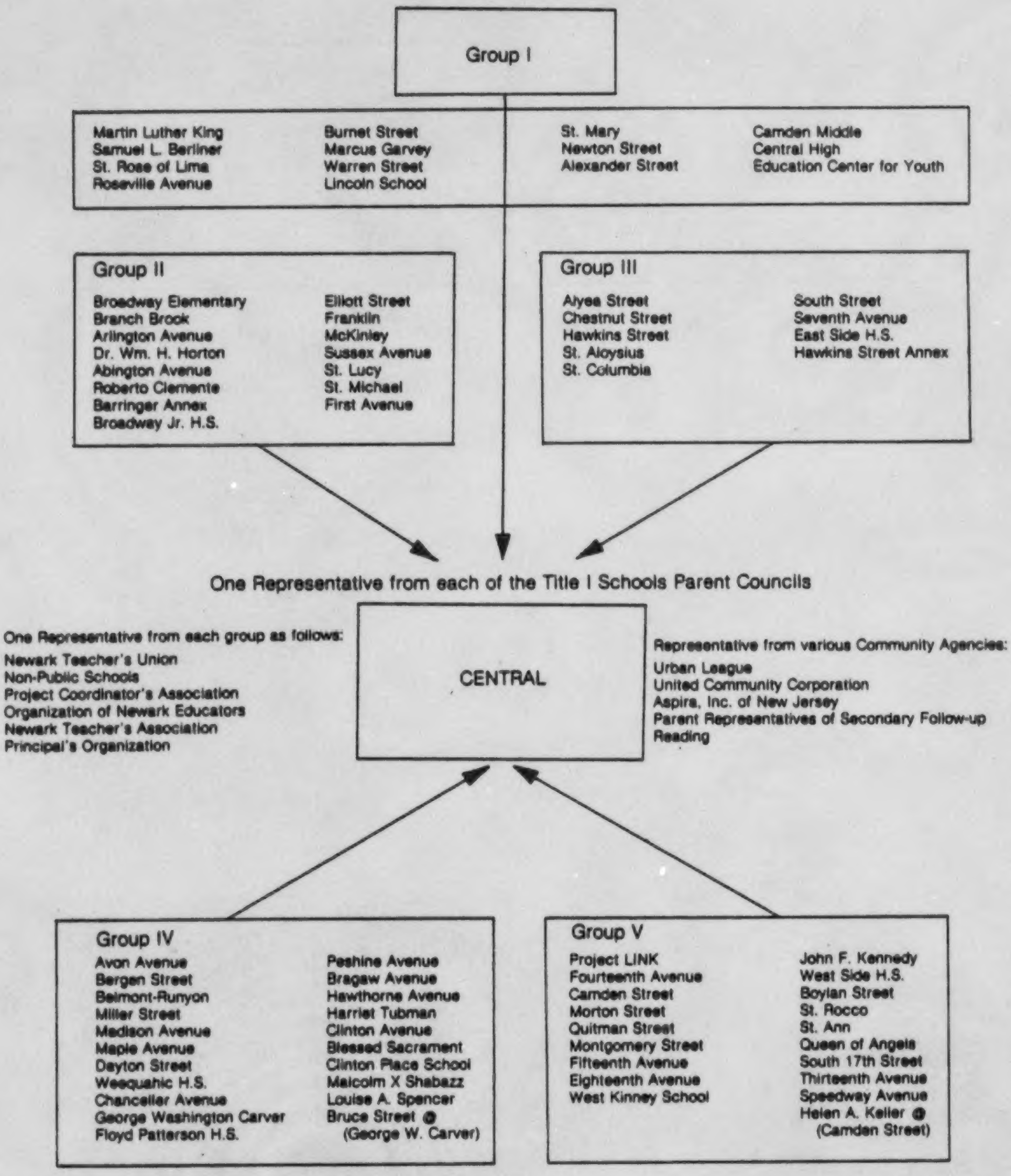
11.1 Central Parents Advisory Council

11.1.1 Introduction

Parental involvement was a vital component of the Newark Title I Program in 1980-81. This component for parental participation in all phases of the Title I Project included the preparaton of the Title I application and the evaluation of the various projects. In order to maximize parental involvement and to improve communication in such a large school district, a Central Parent Council was organized and given the responsiblity of providing parental involvement and coordinating those activities in the overall functions and operations of the Title I program.

There were three tiers in the organizational structure of the Parent Council: the Local Parent Council, Group Parent Council, and the Central Parent Council. The first tier of the Parent Council was at the local level. Each Title I school had a Local Parent Advisory Council (PAC) with an independent governing body. The various local school PACs were organized into Group Councils. The Group Councils were comprised of representatives from the Local Schools within the five (5) geographical areas of the school district. Representatives from the Group Councils formed the Central Parents Council, which served as the policy making body. It consisted of a Chairperson, a first and second Vice Chairpersons, a Recording Secretary, an Assistant Recording Secretary, and a Corresponding Secretary. Figure 11.1 illustrates

Figure II.I
TITLE I PARENTS COUNCIL
TABLE OF ORGANIZATION


Group I
Martin Luther King
Samuel L. Berliner
St. Rose of Lima
Roseville Avenue
Burnet Street
Marcus Garvey
Warren Street
Lincoln School
St. Mary
Newton Street
Alexander Street
Camden Middle
Central High
Education Center for Youth
Group II
Broadway Elementary
Branch Brook
Arlington Avenue
Dr. Wm. H. Horton
Abington Avenue
Roberto Clemente
Barringer Annex
Broadway Jr. H.S.
Elliott Street
Franklin
McKinley
Sussex Avenue
St. Lucy
St. Michael
First Avenue
Group III
Alyea Street
Chestnut Street
Hawkins Street
St. Aloysius
St. Columbia
South Street
Seventh Avenue
East Side H.S.
Hawkins Street Annex
One Representative from each of the Title I Schools Parent Councils
One Representative from each group as follows:
Newark Teacher's Union
Non-Public Schools
Project Coordinator's Association
Organization of Newark Educators
Newark Teacher's Association
Principal's Organization
CENTRAL
Representative from various Community Agencies:
Urban League
United Community Corporation
Aspira, Inc. of New Jersey
Parent Representatives of Secondary Follow-up
Reading
Group IV
Avon Avenue
Bergen Street
Belmont-Runyon
Miller Street
Madison Avenue
Maple Avenue
Dayton Street
Weequahic H.S.
Chancellor Avenue
George Washington Carver
Floyd Patterson H.S.
Peshine Avenue
Bragaw Avenue
Hawthorne Avenue
Harriet Tubman
Clinton Avenue
Blessed Sacrament
Clinton Place School
Malcolm X Shabazz
Louise A. Spencer
Bruce Street @
(George W. Carver)
Group V
Project LINK
Fourteenth Avenue
Camden Street
Morton Street
Quitman Street
Montgomery Street
Fifteenth Avenue
Eighteenth Avenue
West Kinney School
John F. Kennedy
West Side H.S.
Boylan Street
St. Rocco
St. Ann
Queen of Angels
South 17th Street
Thirteenth Avenue
Speedway Avenue
Helen A. Keller @
(Camden Street)

the organization of the Newark Title I Parent Council and the schools which are served by the Council. This organizational structure increased the efficiency and quality of services rendered at the local level.

11.1.2 Project Narrative

Since its inception, Title I of the Elementary and Secondary Education Act (ESEA) has required parental involvement and the evaluation of its effectiveness. In the Newark School district, parental involvement has been considered an obligation which provides a high quality Title I program. The Central Parents Council with its various organizational levels have developed the following specific objectives:

a. To involve parents and school personnel in a cooperative system of activities which will increase the educational opportunities of Newark school children both in school and at home.

b. To improve the relationship between the school and home by enabling parents to
   - define their relationship to each other
   - define their roles as they pertain to the children in the projects, and
   - identify family needs and resources, both at school and in the community.

c. To provide teachers and administrators with opinions and viewpoints that will lead to a better analysis of the needs of the target population and more relevant program planning.

d. To gain the knowledge and understanding of the educational needs of parents and their children and to use this information to improve children's growth in the project.

e. To coordinate the efforts of parents, community agencies and the school to improve student growth and satisfaction in the process of their development.

f. To acquire additional knowledge about civic agencies and community services in order to channel parents to the proper agency for needed services.

g. To provide a common base of interest around mutual civic concerns and to channel community resources to redress these concerns.

To achieve the above objectives, the Parents Advisory Council sponsored a number of activities for the school year. Some of these activities included preparing of Title I Project application, conducting inservice workshops and seminars, assisting with classroom instruction as teacher aides, conducting classroom observations, assisting in the project evaluation, and holding regular meetings in which relevant information and materials were disseminated to members and the community at large. All these activities culminated in an annual conference in which speakers of national importance were presented.

11.1.3 Evaluation Design

To assess the activities of members of the Central Parents Council, a discrepancy analysis was conducted. Analyzed were the parent activities for the 1980-1981 school year as described in the Title I application for the same school year. A questionnaire was developed and administered to the coordinator of Parents' Activities, all assistant community specialists, and a random sample of parents, community consultants, and community aides.

11.1.4 Findings

It was found that the Coordinator of Parents activities was involved in all of the activities that were assigned to her. Among the most important were the coordinating of inservice activities by contracted agencies; planning and arranging monthly Title I Central Parents Council meetings; planning and conducting regular training for Title I parents; and attending group meetings to explain legislation, policies and guidelines governing the Title I Program.

The assistant community specialists were involved in a number of activities related to the specific objectives mentioned above. Sixty-six percent of the community specialists were involved in conducting regular inservice programs in order to inform parents of services and parent activities that were available. All the community specialists had been involved in 100% of their activities listed in the Title I Program guidelines. These activiites included developing programs and conducting workshops and seminars to educate and inform council members of the purpose and activities of the Title I Program. Other activities consisted of coordinating activities with local council chairpersons, disseminating Title I Program information to Non-English speaking parents, evaluating inservice training and workshops for parents and other Title I personnel, and gathering and analyzing information on the Title I Program to state, federal and other agencies.

Another group of parents with specific functions was the community consultants. The parents in this category often attended the Central Council meetings at the local level, met with community aides (another group of parents) to provide training and to discuss problems and needs that have arisen, attended conferences and workshops and wrote reports for the Central Parents Council. However, the most important function of this group was to conduct classroom observations in order to assess the impact of the Title I Program. (The results of these observations are discussed in a separate section of this chapter). In addition the community consultants assisted the Office of Research and Evaluation to code Title I evaluation questionnaires and to make an initial analysis of the noncognitive data.

The function of staff varied. Of those who responded to the evaluation questionnaire, 100% used Title I instructional materials at home to reinforce classroom instruction, 80% participated in workshops and training sessions which helped them to develop teaching activities that they implemented at home; another 60% attended open-house meetings and helped to arrange field trips for Title I students. Forty percent acted as chaperones for students while all those who responded to the questionnaire indicated that they had attended at least two performances staged by Title I students.

Community aides constituted the final category of parents in the Central Parents Council. These parents had a variety of functions, from escorting students home to assisting in classroom instruction and in the nurse's office during physical examinations. Some of their activities overlapped with those already described. However, one important activity was to encourage Title I parents to participate in the program activities. This was an extremely important task especially in an urban school district where it is necessary to encourage working parents to participate in school activities.

The Central Parents Council usually conducted a number of other activities which were designed to assist parents and other staff personnel to improve their knowledge of the Title I Program. For the last fiscal year, a total of twenty-six staff development training sessions were planned and conducted. These sessions, with an average attendance of 18 parents, were convened in order to inform parents of federal guidelines, roles and functions of the parent council, strategies of parental involvement needs assessment, and interpretation of evaluation data on the Newark Title I Program. An evaluation of each session was completed and the responses of the parents were overwhelmingly positive.

11.2 Classroom Observations

11.2.1 Introduction

A vital aspect of parental involvement in the Title I program was classroom observation. The purpose of the observations was to gather data on the quality of instruction in the classroom, the condition of instruction materials and equipment, the degree to which the classroom environment was conducive to learning, student-teacher interaction, and the objectives of remedial instruction of the Title I program. To determine these ends, a pupil/classroom observation form was developed and used to rate each of the variables in the objective.

11.2.2 Project Narrative

The community consultants from the Central Parents Council were asked to conduct the pupil/classroom observations. A workshop was conducted by the Office of Research and Evaluation staff and the Title I evaluation coordinator trained the community consultants to use the observation forms so that inter-rater reliability could be maintained. All of the community members who were involved in the observations had several years of experience in conducting similar classroom observations. Thus, it was unnecessary to determine the inter-rater reliability. All consultants were instructed to observe an entire lesson without interrupting or distracting students from learning. If the consultant deemed it necessary, he or she could have a debriefing session with the teacher at a convenient time after class. Consultants were also encouraged to share the results of their observations with teachers.

A total of 109 observations were conducted at different sites. The determination of the number of sites and observation in each program area was based upon the proportion of students served in these programs. Table 11.1 summarizes the number of observations by program area and proportion. The data were analyzed in terms of frequency of occurrence and are presented in the same way.

TABLE 11.1

Observations Conducted by Parents

During the 1980-81 School Year

Component	Number of School Sites	Total Number of Observations	Proportion
Public Elementary	17	62	.57
PEP	11	11	.09
Secondary	4	6	.06
Special Education	2	12	.11
Nonpublic Education	5	16	.15
Special Programs	1	2	.02
Total	40	109	1.00

11.2.3 Project Evaluation

Upon arriving at the school site where the observation was to be conducted the community consultants were greeted by the Title I Project Coordinators and were then escorted to the assigned classroom. In the absence of the Title I Coordinator, they were greeted by the office secretary and were then escorted to the assigned classroom by a security guard, teacher aide, or a student. The average length of the Title I class period, according to the observation, was 44 minutes, with the shortest period, being 35 minutes (lab) and the longest 60 minutes (computational skills). The average class size was nine. The content of instruction during the observations ranged from using filmstrips on controlled reading devices to a variety of mathematical operations and language acquisition skills.

During the time spent in the classroom, a vast majority (94%) of the observers reported that there were bulletin boards. In contrast only 69% reported that the bulletin boards were in use. Also, the majority of observers (84-93%) reported that there were chalkboards and educational display areas. These same observers continued to indicate that the classrooms had adequate lighting, ventilation, heating, classroom supportive personnel, and adequate space for learning. Two schools were identified as having unsatisfactory learning environment. These schools had either poor ventilation or inadequate space. In addition, classroom activities were disrupted by loud noise from adjacent classes.

The observers also reported their findings on the instructional materials and equipment used to aid teaching in Title I programs. More than 54% of the observers reported that there were instructional equipment, teacher-made materials, pupil-made materials, dictionaries, library books, picture files and other materials in the Title I classroom. However, there were several classrooms without newspapers, magazines, or encyclopedia. This problem was more acute in the nonpublic schools than the public schools. As a matter of fact, according to the observer one nonpublic school was borrowing textbooks for computational skills while another requested reading tests every year but got no response.

The parent observer also reported their findings on organization of classroom lessons and pupil participation. The observers found that even though Title I classes were generally small; e.g nine students, there were a number of large and several small groups of students working independently. All of the observers reported that in the majority of cases, there was a great deal of individual pupil activity with teacher assistance. All of the observers reported that there was active pupil participation in the Title I classroom in the form of responding to teachers questions, clarifying ideas, asking questions, working on individual projects, helping each other or simply paying attention to what the teacher was saying. Generally speaking, in more than 91% of the cases, students demonstrated active participation in the lesson.

11.2.4 Conclusions and Recommendations

Based upon the results of the classroom observations, it was found that the Title I classrooms were generally small and permited individual instruction as well as small and large group instruction. The educational climate was conducive to learning and this factor, in addition to others, encouraged pupil participation in instructional activities. The educational materials and equipment, with the exception of a few cases, were generally adequate. All these factors contributed to the academic and behavioral improvement of Title I students.

While the observers concurred that little improvement was needed in 76% of the cases, they recommended that:

1. The physical facilities and classroom environment at William H. Horton, Sussex Ave. and Abington Ave. schools be improved.
2. Nonpublic schools ought to get more textbooks and other materials promptly.

3. Teachers need more classroom space (in some schools), materials and equipment in order to continue the process of improving student performance.
4. Most of the Title I teachers care about improving their students overall performance and should be supported by reducing excessive paper work.

11.3 Survey of Parental Involvement

11.3.1 Introduction

Actual parental involvement was an important component of the Title I program. In order to examine parental involvement in Title I, a survey was conducted of parents with children in the Title I program. A questionnaire was designed to investigate: 1) channels of communication between Title I staff and parents; 2) participation in Title I parent activities and, 3) parents' evaluations of the effectiveness of Title I activities.

11.3.2 Evaluation Design

Sample. Twenty percent of the Title I parents were to be included in the present study. Title I project coordinators were instructed to make a list of every fifth student in grades 1-6. Teachers gave questionnaries to 9,564 students in the Title I population (public and nonpublic combined), and received back a total of 1,748 parents questionnaires which formed the basis of this report. This number represents 18% of the Title I population.

Public Schools. A total of 1,614 questionnaires were included in the public school analysis. This figure represents 18% of the 8,906 total public school students Title I population.

Nonpublic Schools. In the nonpublic schools, grades 1-6 there are 658 students in the Title I program. A total of 134 questionnaires were included in the present analysis, thus reflecting 20% of the Title I nonpublic school parents.

11.3.3 Findings - Public Schools

Channels of Communication. Combining the data across languages and from all three programs, the results indicated that the newsletter, the child, and the Title I teacher were the most common channels through which parents received information about the Title I program in the school (see Table 11.2). These were the same vehicles of communication identified last year as predominant conveyors of information. However, the newsletter only appeared to be a valuable information source for native speakers of English. Parents who answered the Spanish questionnaires, and those who answered in English but have children in the PEP program, indicated they received information about the Title I program through the newsletter only about one third as often as "Non-PEP" English questionnaire respondents. The Title I project coordinator tended to assume a more important role for Hispanic parents. Thus, the patterns of information flow differed to some extent for English and Spanish questionnaire respondents and for parents of students in various programs. In general, receipt of information about the Title I program tended to be relatively similar for parents of students in Language Experience and Computational Skills and relatively different for parents of students in the Program for English Proficiency.

A similiar pattern of results emerged from an analysis of how parents received information about Title I Parents Council activities. In general, the most common channels of communication were the newsletter, the child, and

TABLE 11.2

Percentage of Use of Information Sources for the Title I Program, Public and Nonpublic Schools

		Information Sources									
	N	Title I Teacher	Title I Teacher Aide	Title I Community Aide	Title I Project Coordinator	Child	Title I Parent Coun. Mtg.	Mail	News-Letters	Other	Not Rec'd Any
Public											
Total English	1257	36	11	25	26	33	20	6	55	2	4
Total Spanish	357	33	13	23	37	44	29	19	17	4	8
Grand Total	1614	35	11	25	29	36	22	9	47	3	5
Nonpublic	134	20	15	27	40	33	23	3	25	9	5

the Title I Project Coordinator. While the latter two were important for both English and Spanish respondents, the newsletter again was an important information source for English respondents only. Parents who answered the questionnaire in Spanish were more likely to learn about Parent Council activities by material sent through the mail.

Parent Participation. There was a consistent pattern of results concerning the types of Title I activities which brought about the most parental involvement. Overall, parents participated most often in individual conferences with teachers and in the Title I Parent Council (see Table 11.3). These are the same activities which resulted in the most parental involvement last year. Thirty-nine percent (39%) indicated they had not yet participated in any Title I activities this year.

When asked to indicate the number of Parents Council meetings attended so far this year, 52% reported going to at least one. Forty-four percent (44%) reported they had not attended any Parent Council meetings this year. Compared to last year, this was an improvement in attendance at Parent Council meetings. Questionnaire results from 1979-80 indicated that 52% of public school Title I parents did not attend a single parent Council meeting. According to the data collected comparison of English and Spanish questionnaire respondents showed distinct patterns of results. The Spanish group showed a substantially better attendance record than the English group. Only 33% of the Spanish respondents reported not attending any Parent Council meetings while 47% of the English respondents failed to attend a single meeting. This pattern was observed consistently. For both English and Spanish respondents, the majority of parents who attended at all, attended between one and three Parent Council meetings. Only 4% had attended between seven and ten meetings.

TABLE 11.3

Percentage of Involvement in Title I Parent Activities

	N	Individ. Confer. W/Tchr.	Parent Council	Assist In School Activities	Program Evaluation	Other	None
Public							
Total English	1257	30	26	9	7	3	40
Total Spanish	357	35	38	11	6	5	34
Grand Total	1614	31	29	9	7	4	39
Nonpublic	134	31	31	20	7	4	23

Program Effectiveness. Parents were asked to evaluate three aspects of the Title I program:

1. Which are the two most important Title I Parent Council activities?
2. To what extent has the Title I program helped your child's reading ability?
3. To what extent has the Title I program helped your child in arithmetic/mathematics?

Parents consistently indicated that the two most important Title I Parent Council activities were: 1) to encourage cooperation among parents, pupils and the schools and 2) to understand the desires of parents and use this information to improve education for their children. These were the same activities that parents last year identified as being most important.

In regard to the Title I program's effectiveness in developing student's basic skills, a majority of parents consistently indicated they thought the program helped develop their child's reading and math skills "a great deal". As shown in Table 11.4, 66% of public school parents indicated there had been "a great deal" of improvement in their child's reading ability while 58% reported that Title I had helped their child "a great deal" with math. The highest ratings for program effectiveness in both reading and math came from parents who answered the questionnaires in Spanish. There were differences in ratings of program effectiveness in developing basic skills depending upon program in which the child was enrolled. The most dramatic rating can from Spanish questionnaire respondents whose children were in Computational Skills. Eighty-nine percent (89%) reported that Title I had helped their child's reading "a great deal". Sixty-eight percent (68%) of Spanish respondents whose

TABLE 11.4

Percentage Ratings of Program Effectiveness in Developing Basic Skills

		Degree to which Title I Program Helped Reading				Degree to which Title I Program Helped Math			
	N	A Great Deal	To Some Extent	A Little	Not At all	A great Deal	To Some Extent	A Little	Not At All
Public									
Total English	1257	62	23	8	3	55	17	9	5
Total Spanish	357	78	14	5	3	69	14	6	5
Grand Total	1614	66	21	8	2	58	16	8	5
Nonpublic	134	70	20	5	0	31	18	9	2

children were in Language Experience indicated theprogram had helped "a great deal" with reading. Only 2% of all parents indicated Title I did not help their child's reading at all and only 5% reported the program failed to develop their child's math skills.

11.3.4 Findings - Nonpublic Schools

All of the questionnaires were in English. Students in the nonpublic schools like those in the public schools were in Language Experience, Computational Skills or the Program for English Proficiency (PEP). Since only 13 questionnaires from the PEP Program and only 37 from Computational Skills were returned, the nonpublic results from all programs are discussed as a whole.

Channels of Communication. The primary source of information about the Title I program was the Title I Project Coordinator. Forty percent (40%) of the parents reported they received information about the program from the project coordinator, 33% indicated they obtained such information from the child, and 27% received information from the community aide (see Table 11.2). Last year the Title I teacher was identified as a major source of information about the Title I program.

The Project Coordinator and community aide were also major sources of information about Title I Parent Council activities. In addition, parents learned about Parent Council activities from reading the newsletter.

A comparison of nonpublic and public school methods of communicating about the Title I program and Parent Council activities showed different patterns of information flow. For example, the community aide appeared to play a greater role as a liaison in the nonpubic schools than the public.

Parent Participation. Nonpublic parents indicated that the Title I activities they were most frequently involved in were individual conferences with the teacher and parent council activities (see Table 11.3). These were the same activities which last year were identified as bringing about the most participation. These were also the same activities public school parents identified as being the major forms of Title I parental involvement. Nonpublic school parents showed a higher rate of attendance at Parent Council meetings than public school parents. Only 33% of parents from the nonpublic schools indicated they had not attended any Parent Council meetings so far this year. Forty percent (40%) reported going to one to three meetings. Whereas only 10% of public school parents attended four to six meetings, 23% of nonpublic parents attended that many. However this year's record reflected somewhat of a declince in attendance since during 1979-80 only 28% of nonpublic parents reported having never attended a Parent Council meeting.

Program Effectiveness. When asked to identify the two most important Title I Parent Council activities, parents selected: 1) understanding parents desires and using this information to improve education for their children and, 2) encouraging cooperation among parents, pupils and the schools. Last year (1979-80) nonpublic school parents identified improving school and community relations as one of the most important Parent Council activities.

Seventy percent (70%) of nonpublic school parents felt that Title I helped their child's reading "a great deal" (see Table 11.4). In sharp contrast only 31% thought the program had a great effect on their child's math skills. This was the same pattern of results which emerged in the analysis of the public school data, however reading was rated higher and math was rated lower by nonpublic school parents. While only thirty seven (37) nonpublic parents whose children were in Computational Skills returned questionnaires, forty-one (41) of the 134 nonpublic parents felt Title I helped develop their child's math "a great deal" and twenty-four (24) indicated the program helped "to some extent".

11.3.5 Findings - Public and Nonpublic Schools

Channels of Communication. Since only 5% of all Title I parents did not receive any information about the Title I program or Parent Council activities, the issue of concern was not whether communication occurs, but how effective the communication process itself was. Perhaps next year the focus should be on using the identified methods of transmitting information more effectively. For example, since the child was consistently a major source of information about Title I, one might consider investigating: 1) how the child conveys information (e.g. written notes or verbal messages)? 2) Does the child communicate information completely and accurately? 3) Does the child transmit information on time? By examining the major information sources used, it may be possible to improve the quality of the communication process which results in increased parent interest and cooperation.

While 95% of public and nonpublic school parents received information about Parent Council activities, considerably fewer attended at least one meeting. Thus it may be helpful to review the content of the communication. Perhaps Parent Council activities could be modified in such a way as to meet the interests, needs and concerns of Title I parents.

Parent Participation. In both public and nonpublic schools individual conferences with teachers and Parent Council meetings emerged as the major activities which elicited parental involvement. Relatively few parents participated in the Title I program evaluation or assisted with school activities. It is possible that the activities parents did participate in could be used more effectively to encourage parents to participate in these other activities. In addition, communciation was an important way of eliciting involvement in Title I parent activities. If, as discussed above, the identified major sources of information for parents could be used more effectively, improved communication might result in increased involvement in these other Title I activities. For example, the community aide could assume a greater role as an advocate for participating in Title I activities, and while communicating to parents about the program, could encourage parents to become involved in those areas (such as helping out in school) which are relatively neglected.

Results of this survey indicated that a majority of parents do participate to some extent in Parent Council activities. However, most parents who did attend Parent Council meetings attended only one to three of them. Future research might be directed towards determining why parents did not attend more frequently. For example, did most parents only have time to attend 1-3 meetings or did they have other reasons for not attending? After determining the reasons for lack of attendance, specific recommendations could be made to better meet the needs and tap the interests of parents, and thereby elicit more parental involvement.

Program Effectiveness. In both public and nonpublic schools, the Title I Parent Council activities rated most important were: 1) understanding parents' desires and using this information to improve education for their children and, 2) encouraging cooperation among parents, pupils and the schools. Future research might be directed towards determining how effective parents feel the Parent Council was in performing these important functions. It may be useful to examine: 1) What is actually being done in these areas? 2) What strategies are being used to accomplish these goals? 3) How effective are these strategies in fulfilling these responsibilities? 4) What are the areas of relative strength and weakness in Parent Council activities? Results of such analyses could be studied by the Parent Council in order to maximize its effectiveness.

The majority of public school parents felt Title I is helping their child's reading and math "a great deal". Next year it may be helpful to interview parents who feel the program was helping their children "to some extent" or "not at all". Through such interviews it may be possible to discover: 1) what parents' expectations of the Title I program are, 2) in what specific ways Title I disappointed them in helping their children develop reading and math skills, 3) how parents "measure" program effectiveness, i.e. what are the bases of parents' opinions about the success of the program, 4) what parents would like to see done in the future, 5) whether parents discussed their relative dissatisfaction with the Title I teacher or project coordinator, 6) to what extent parents' perceptions of reading/math gain correspond to children's actual achievement in those areas. Perhaps discussing such issues with parents would serve as a springboard for bringing about greater cooperation between parents and Title I staff in developing a plan for parents to assist their children more at home or in the schools.

In general, the results suggested that parents of Title I children are considerably more satisfied with the progress children are making in reading than in math. As previously indicated, parents of public school students expressed there is greater satisfaction with reading than math achievement. In the nonpublic schools, there was a greater discrepancy between parents' perceptions of improvement in the two basic skills. Research should be directed towards determing why such a discrepancy exists and what can be done to improve nonpublic school parent satisfaction with math skill development.

Parents' Comments. When given the opportunity to make comments about Title I, the most common response of parents was to praise and express appreciation for the Title I program. Often their praise was couched in a statement of advocacy for the program in light of proposed cuts in the program by the Federal government. More than seventy parents wrote comments which complimented the program in some way. Commendations included the program's benefit to both parents and children. In addition, the Title I staff was praised for its cooperation, commitment and effectiveness.

11.3.6 Conclusions and Recommendations

Analysis of the parent questionnaires leads to the following conclusions:

1. There appeared to be considerable stability in parents' relationship to the Title I program from year to year.
2. There were substantial differences in the parental component of the particular Title I program in public and nonpublic schools.
3. Parents' reactions to the Title I program differed as a function of the particular Title I program in which their child was participating.
4. The Title I program was perceived differently by English and Spanish questionnaire respondents.
5. Information about the Title I program in school and Title I Parent Council activities was usually communicated.
6. Parents' participation in Title I activities tended to be restricted to particular types of events rather than being broad based.
7. Parents were generally satisfied with the program's effectiveness in improving the skills of their children.
8. More research should be directed towards qualitative aspects of the parental components of the Title I program.

APPENDICES

APPENDIX A
NEWARK TITLE I EVALUATION MODELS

EVALUATION MODELS

Because of the complexity of the Newark Title I Project, several evaluation designs have been employed. Two of the designs are the Model C (a regression model) and the modified Model A, both of which have been mandated by Congress. Both models have been used to evaluate the Language Experience and Computational Skills projects of the Title I Program. Model C was used to evaluate data for the Newark Public Schools while Model A was used to evaluate data for Newark nonpublic schools. To evaluate the other instructional and non-instructional components of the Title I Project, the one group pretest/post-test design was employed. Finally, to evaluate parental and community involvement, a survey was conducted. Each of these designs is described in more details below.

A. Model C: The Regression Model

To evaluate the reading and math components of the ESEA Title I program, the various models were reviewed. Each model aimed at the same goal, that of documenting the degree of program effectiveness; but each takes a different approach to determine pupil expected achievement level after a year of instruction. The choice of a particular model was usually dictated by practical and administrative concerns. The model adopted by the Newark School District, often referred to as Model-CI, is based on a regression-discontinuity design (Campbell and Stanley, 1963). The above model called for assignment of participants to alternative instructional treatments or programs, based upon their performance on a standardized achievement test.

As described in a previous section, students' performance is assessed during the last two weeks of April and the first two weeks of May every year by the administration of the Metropolitan Achievement Test and the Comprehensive Test of Basic Skills. Any student whose score is higher than a predefined criterion (cut-off point) will receive only the regular classroom instruction. Any student whose score is lower than the predefined cut-off point is considered eligible to receive remedial Title I instruction in addition to the regular classroom learning experience. Students falling in the latter category are commonly referred to as the treatment or service group, while those who fall into the former category are designated as the control or comparison group. After one year of instruction, the pupils are tested again; this second testing is commonly called the post-test.

According to the regression design, Title I evaluation is conducted in two stages: 1) Since the pupils in the Title I program receive the remedial services as a supplement to their regular classroom instruction, an essential task is to find out what their achievement level would have been without the Title I remedial support. The pupils who do not receive remedial services represent a convenient group whose performance can be used to estimate the impact of the regular classroom instruction alone. The relationship between the pretest achievement and the post-test achievement is calculated for the latter group, using the linear regression procedure. A single line is usually appropriate to describe the relationship. This regression line can be "stretched" to cover the entire range of pretest scores. For the lower tail/range of the score distribution - those scores appearing under the cut-off point - a mean post-test score is estimated. This mean offers an indication of what student achievement in the group would be like without the Title I instruction. 2) The second state of the analysis is a comparison of the predicted or expected scores to the actual scores obtained by Title I pupils on the second testing (post-test). If there is no difference, or if the change is negative, the Title I program has failed to meet its objective. If the difference is positive, or the actual achievement level is better than the expected achievement level, then Title I program is considered effective. Of course, the greater the gain, the more effective the program will be.

In order for this type of interpretation to be correct, controls must be present so that no unseen factor (artefact) is inflating or wiping the possible change from pretest to post-test. First of all, no correct prediction can be made if the pretest and the post-test are not correlated at all, i.e., if they measure different variables. A moderate-to-strong correlation coefficient is an absolute requirement for application of the regression model. For this reason, the same measurement instrument should be used for both the pretest and post-test. In this case, the test reliability defines the upper limit for the correlation.

A second condition that may affect the change from pretest to post-test has to do with the distribution of scores. If the test is too difficult for the group of pupils being tested, a large percentage of them are likely to obtain very low scores (at or near the chance level). This factor is called the floor effect. If the test is too easy for the pupils, a large percentage of them are likely to obtain the maximum score, a factor which is referred to as the ceiling effect. When a test is not properly differentiating students in the upper or the lower ability range, there is a contraction of variance in the score distribution and it will result in a distortion of the regression coefficient. For this reason, a scattergram is developed as a recommended preliminary step in the analysis. The scattergram helps to identify possible floor or ceiling effects.

Even under normal conditions, the impact of Title I services may not be necessarily constant or equal for all program participants. One group may not benefit at all while another group may. In statistical terms, this means that the slope of the regression lines is not the same for the comparison group and for the treatment group. Detecting that type of variation within the Title I group can help a great deal in program improvement. For this reason, the changes in scores from pretest to post-test are usually studied at two different points; first, at the mean, then at the point where the regression lines meet the cut-off line (Tallmadge and Horst, 1975.) At either point, the statistical significance of this difference can be tested, using one tailed t-statistic. If the one tailed probability is larger than .05, it can be concluded that the difference may be due to chance and may not be accepted as important.

Model A: Norm-Referenced Model

Model A design is basically a norm-referenced group model. Normative data, gathered on Title I participants themselves, are used to substitute for data from a no treatment control group. It should be emphasized that Model A evaluation does not compare the achievement gains of Title I students with the gains of average students. Instead, the gains of project students are compared against scores they received prior to project participation. There are two operational requirements imposed by Model A evaluation: 1) pretesting must be accomplished after project participants have been selected, and 2) both pretesting and post-testing must be accomplished at times that are close to empirical normative data points the test used. The second requirement for Model A evaluation was met; the first was not because participants in the Title I project were chosen on the basis of their pretest score only.

The assumption tested by Model A evaluation is that if no special treatment was given to the Title I children throughout the year, they would maintain their status with respect to their pretest scores. Thus, children who scored at the 20th percentile of the pretest would also score at the 20 percentile on the post-test unless they participated in some special instructional intervention. If their post-test status is found to exceed their pretest status, the assumption is made that the improvement resulted from participation in the special project. However, if a group of students, who were selected because of their low scores, is retested with the same or an alternate form of the test, the majority of them will tend to obtain higher scores on the second testing. If the second testing is the post-test, this gain will be added to whatever gain resulted from the instructional treatment, and the treatment will appear more effective than it really was. Thus, the problem with using a single set of test scores for the dual purpose of selecting project participants and assessing their pretreatment achievement status stems from the fact that test scores are not always reliable indices of performance.

Baker (1981) developed a mathematical procedure to correct for the problem arising when, as in the nonpublic schools, Model A pretest scores were used to select Title I students. The statistical correction he proposes provides a workable solution to obtain an estimated pretest status for the Title I students. The determination of the pretest scores is done by adjusting actual pretest scores to estimate the expected average score on a separate pretest (if it had been administered). The adjusted pretest scores provide the baseline for measuring achievement. In the modified Model A evaluation, the expected average pretest score was compared with the average observed post-test score in order to determine the impact of the Title I program.

The One Group Pretest/Post-test Design: As it had been indicated earlier, Congress has not mandated any specific research design to evaluate the noncognitive and special programs components of Title I as yet. It was therefore considered appropriate for the purpose of this evaluation to employ the one group pretest/post-test design since this design is built into the intervention activities. This design is diagrammed as follows:

0_1 X 0_2

It can be seen that pretest observations (0_1) were recorded on a single group of students i.e. those falling below the cut-off point on the regression model described above and who received Title I remedial services (X) in special programs or in the noninstructional areas. At the end of the treatment or remedial services (X), post-test observations were made. To determine the effectiveness of Title I services in the area assessed, the pretest observations (0_1) are compared with the post-test observations (0_2) for statistically significant differences. These differences may then be attributable to the treatment effect (X) if certain factors affecting internal validity are controlled.

Survey: In a survey, an attempt is made to determine the incidence, distribution and interrelations among sociological and psychological variables. The survey used in this evaluation focused on gathering vital facts concerning parental and community participation in the Newark Title I Program. It also assessed their attitudes toward the program and their opinions of its effectiveness. Since there are various kinds of surveys, it is necessary to point out here that the kind used in this evaluation is the questionnaire survey. The questionnaire consisted of ten closed and open-ended questions which were designed to elicit facts, beliefs, attitudes and opinions about the Title I Program.

These variables are described in more details in Chapter 11 which deals with parent and community involvement. The sampling design for the survey was the same as that for the assessment of noncognitive data. It consisted of a stratified random sample with proportional allocation to each strata. The proportion for the overall sample was .43.

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APPENDIX B

METROPOLITAN ACHIEVEMENT TEST

METROPOLITAN ACHIEVEMENT TESTS

In May 1980 and 1981 all children in the Newark schools were administered a standardized achievement test to assess their cognitive growth. Based on predetermined cut-off scores at each grade level, students were selected for Title I remedial services in reading and math. Since the Metropolitan Achievement Test (MAT) is the major instrument used in the analysis of student performance, a description of the instrument is offered for the convenience of the reader.

Metropolitan Achievement Test consists of a series of measures designed to tell teachers and administrators how much pupils have learned in important content and skill areas of the school curriculum. The tests are basically a source of information yielding comparable measures from one level to another and from one subject to another. These features help educators in evaluating pupil progress over the years and in identifying particular strengths and weaknesses. In addition, the tests are designed (1) to help teachers plan for instruction based on pupils' needs and differences and to evaluate the effects of previous instruction; and (2) to help administrators assess schoolwide progress toward educational goals and to plan for and evaluate curricular changes.

The test contents are based on careful and extensive analyses of textbooks, course descriptions, and other curricular sources. A brief overview of test contents is given below:

1. Metropolitan Achievement Tests - Primary I

   Word Knowledge - 35 items measure extent of pupils' reading vocabulary, pupils are given a picture of some common objects and must select from four words the one word that describes the picture. Words are generally from primary level readers.

   Word Analysis - 40 items measure pupils' knowledge of sound-letter relationships or skill in decoding. Pupils must identify a dictated word from among several words with similar configurations and sound patterns.

Reading - 42 items measure pupils' comprehension of written material. Thirteen items require pupils to select one of three easy sentences which best describes a picture. Nineteen items require pupils to read simple paragraphs and answer questions about what they have read.

Mathematics - Part A: Concepts - 35 items measure pupils' understanding of basic mathematical principles and relationships. Items cover such subjects as counting, place value, sets, and measurement.

Part B: Computation - 27 items measure pupils' ability to add and subtract one and two-digit numbers with no regrouping.

2. Metropolitan Achievement Tests - Primary II

Sub-test	Number of items
Word Knowledge	40
Word Analysis	35
Reading	44
Math Concepts	40
Math Computation	33
Math Problem Solving	35

3. Metropolitan Achievement Tests - Elementary

Sub-test	Number of items
Word Knowledge	50
Reading	45
Math Computation	40
Math Concepts	40
Math Problem Solving	35

(See description under Intermediate level. Numbers of items and difficulty level per subtest differ).

4. Metropolitan Achievement Tests - Intermediate

Word Knowledge - 50 items measure extent of pupils' reading vocabulary. Items ask for synonyms, antonyms, or classification of words. Content covers words used for general information, social studies, humanities, science, and mathematics, without calling for knowledge of technical terms.

Reading - 45 items measure pupils' ability to comprehend written material. Pupils read a paragraph, then answer questions about it. Items call for comprehending literally stated material, drawing inferences from a passage, identifying main ideas, and determining word meanings from context.

Mathematics: Computation - 40 items measure pupils' ability to compute. Items cover processes with natural numbers and with fractions.

Mathematics: Concepts - 40 items measure pupils' understanding of important mathematical principles and relationships. Items cover such areas as laws and properties of number systems, geometry and measurement, place value, inequalities, sets, and estimation.

Mathematics: Problem Solving - 35 items measure pupils' ability to apply knowledge in solving numerical problems. Items include application of everyday problems, use of measurement concepts, chart reading, and use of number sentences.

Metropolitan Achievement Tests - Advanced

Sub-test	Number of items
Word Knowledge	50
Reading	45
Math Computation	40
Math Concepts	40
Math Problem Solving	35

(See description under Intermediate level. Numbers of items and difficulty level per subtest differ).

Interpretation of Standard Score According to the test manual, test scores can be interpreted in a variety of ways. Standard scores on the Metropolitan Achievement Test express the results for a subtest area (e.g., Word Knowledge) for all batteries and all forms on a single, common scale. Within a single subtest area, standard scores are directly comparable from battery to battery and from form to form. The standard scores serve two main functions. First, once raw scores have been converted to standard scores, one need not be concerned with the battery or form from which the raw scores came for purposes of further interpretation. Batteries and forms are made equivalent in the process of going from raw score to standard score. Second, certain technical features of the standard scores make them uniquely suitable for measuring academic growth over a period of time.

The major disadvantage of any standard score scale is that these scores are not directly comparable from one subtest area to another. For example, standard scores in Reading cannot be directly compared with standard scores in Numbers. A standard score of 20 in Reading might indicate a higher or lower level of learning or about the same level of learning as a standard score of 25 in Numbers.

APPENDIX C

TITLE I STATISTICAL DATA (COGNITIVE AREAS)

BY SCHOOL

Language Experience Bilingual
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	Pre - Test SD	Post Test $\bar{X}$	Post Test SD	Correlated t
McKinley	Kdg	1. Oral	17	20.88	11.79	31.11	12.68	8.03*
		2. List. Comp.		20.58	6.57	23.64	7.70	1.73*
		3. Vocab. Ident.		17.64	5.36	22.58	4.58	5.25*
		Total		67.11	20.75	77.35	23.94	2.93*
	1	1. Oral	20	22.30	8.33	25.65	8.97	2.29*
		2. List. Comp.		24.70	6.04	27.20	4.95	2.57*
		3. Vocab. Ident.		18.10	5.84	22.80	3.81	3.11*
		Total		75.10	15.45	118.15	187.54	1.01
	2	1. Oral	24	16.87	5.55	19.70	6.57	2.27*
		2. List. Comp.		16.25	7.21	19.66	6.62	1.99*
		3. Readg. Comp.		15.54	8.77	23.00	8.83	3.69*
		4. Vocab. Ident.		22.83	5.96	23.91	4.75	1.68
		Total		86.50	22.48	86.29	21.13	-0.05
	3	1. Oral	5	25.20	10.14	39.00	4.89	3.07*
		2. Listen Comp.		23.40	2.72	27.80	3.91	2.18*
		3. Readg. Comp.		43.20	5.38	47.00	4.56	1.76
		4. Vocab. Ident.		27.80	0.74	30.00	0.00	5.87*
		Total		134.80	15.19	143.80	11.63	5.20*

Language Experience Bilingual Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post Test		Corre-lated t
				$\bar{X}$	SD	$\bar{X}$	SD	
	4	1. Oral	15	45.60	6.18	52.60	4.75	5.34*
		2. List. Comp.		23.13	3.91	23.33	5.42	0.13
		3. Reading Comp.		21.40	7.90	24.26	7.26	1.75
		4. Vocab. Ident.		12.46	3.98	13.26	4.07	1.32
		5. Writing Ab.		30.80	7.43	34.20	8.68	2.09*
		Total		153.13	24.48	146.66	23.74	-1.39
	5.	1. Oral	8	45.37	7.06	49.37	8.45	2.12*
		2. List. Comp.		24.12	5.92	25.87	5.77	1.45
		3. Reading Comp.		27.12	7.23	28.37	7.59	1.15
		4. Vocab. Ident.		14.12	2.93	15.00	5.04	0.56
		5. Writing Ab.		29.50	8.52	35.00	11.24	3.17*
		Total		160.25	27.27	153.62	35.02	-1.38
	6.	1. Oral	6	61.50	8.95	65.83	5.92	1.53
		2. List. Comp.		10.66	2.21	16.66	3.59	3.35*
		3. Reading Comp.		24.66	8.15	28.83	7.33	1.65
		4. Writing Ab.		27.33	7.88	31.66	5.61	1.42
		Total		144.16	22.11	143.00	19.91	-0.24

* Statistically significant at .05 level

Language Experience Bilingual
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	Pre - Test SD	Post Test $\bar{X}$	Post Test SD	Correlated t
Abington Avenue	2	1. Oral	2	26.00	7.00	39.00	3.00	3.25
		2. List. Comp.		16.50	2.50	33.00	2.00	33.00*
		3. Reading Comp.		18.50	0.50	34.00	7.00	2.06
		4. Vocab. Ident.		19.50	3.50	26.50	2.50	1.16
		Total		95.50	7.50	132.50	5.50	18.50*
	4	1. Oral	4	46.00	9.11	46.25	1.92	0.05
		2. List. Comp.		18.25	3.96	28.25	1.30	3.50
		3. Readg. Comp.		15.50	9.13	29.25	5.85	3.18*
		4. Vocab. Ident.		11.00	3.40	15.25	0.83	2.75*
		5. Writing Ab.		29.50	4.28	30.00	1.00	0.22
		Total		140.25	15.53	149.00	6.05	1.34

* Statistically significant at .05 level

Language Experience Bilingual Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	Pre - Test SD	Post Test $\bar{X}$	Post Test SD	Corre-lated t
Broadway Elem.	Kdg.	1. Oral	6	13.00	4.44	54.84	74.49	1.28
		2. List. Comp.		18.67	4.43	24.00	3.27	2.00
		3. Vocab. Ident.		18.67	3.59	24.00	2.00	2.70*
		Total		63.67	5.03	70.17	6.31	2.96*
	1	1. Oral	5	23.40	6.77	26.00	5.02	0.50
		2. List. Comp.		31.20	3.49	30.80	3.25	-0.17
		3. Vocab. Ident.		26.00	2.19	28.80	1.60	3.50*
		Total		90.60	10.71	85.60	3.93	-0.77
	3	1. Oral	4	33.25	3.96	30.75	3.90	-2.10
		2. List. Comp.		27.25	2.28	31.50	4.98	1.57
		3. Readg. Comp.		37.25	11.33	49.50	3.57	2.48
		4. Vocab. Ident.		28.25	1.48	28.00	1.42	-1.00
		Total		141.00	12.57	139.75	10.99	-0.24
	4	1. Oral	2	40.50	0.50	41.00	1.00	1.00
		2. List. Comp.		20.00	1.00	20.00	2.00	-0.00
		3. Reading Comp.		25.00	1.00	26.50	0.50	3.00
		4. Vocab. Ident.		14.00	1.00	14.00	0.00	-0.00
		5. Writing Ab.		27.50	1.50	32.00	3.00	1.00
		Total		147.00	1.00	132.00	1.00	-0.00

* Statistically significant at .05 level

Language Experience Bilingual
Public Schools

				Pre - Test		Post Test		Corre-lated
School	Grade Level	Subtest	N	$\bar{X}$	SD	$\bar{X}$	SD	t
Burnet St.	1	1. Oral	10	30.40	7.33	36.10	5.07	2.04*
		2. List. Comp.		28.20	2.75	34.60	1.57	7.69*
		3. Vocab. Ident.		22.60	2.20	26.60	1.80	4.48*
		Total		91.20	9.78	97.30	4.70	1.92
	4	1. Oral	4	21.50	6.11	30.25	6.06	2.58*
		2. List. Comp.		14.00	7.18	26.25	6.22	1.88
		3. Readg. Comp.		29.50	4.16	44.00	7.65	5.21*
		4. Vocab. Ident.		25.00	2.24	27.75	1.64	3.22*
		Total		105.00	13.46	125.00	11.36	5.35

* Statistically significant at .05 level

Language Experience Bilingual
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	Pre - Test SD	Post Test $\bar{X}$	Post Test SD	Corre-lated t
Elliot Street	Kdg	1. Oral	11	21.37	9.63	24.82	7.49	1.18
		2. List. Comp.		21.28	7.25	29.64	3.40	4.40*
		3. Vocab. Ident.		17.82	4.63	22.00	4.52	3.72*
		Total		70.46	18.01	76.46	13.76	1.43
	1	1. Oral	4	25.00	14.46	32.25	16.37	0.75
		2. List. Comp.		20.50	11.87	29.50	11.26	15.59*
		3. Vocab. Ident.		15.00	9.11	22.50	7.27	5.00*
		Total		69.75	29.45	84.25	33.33	1.68
	2	1. Oral	2	37.50	3.50	43.00	3.00	11.00*
		2. List. Comp.		23.50	5.50	30.50	1.50	1.75
		3. Reading Comp.		31.50	12.50	34.00	9.00	0.72
		4. Vocab. Ident.		27.00	1.00	29.00	1.00	1.00
		Total		134.50	20.50	136.50	14.50	0.34
	3	1. Oral	4	33.25	11.76	36.50	10.07	1.14
		2. List. Comp.		19.50	9.87	25.25	5.76	1.27
		3. Reading Comp.		32.25	10.64	34.75	11.45	1.02
		4. Vocab. Ident.		25.50	3.05	27.50	2.60	4.90*
		Total		125.50	33.67	124.00	30.15	0.29

* Statistically significant at .05 level

Language Experience Bilingual
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post Test		Corre-lated
				$\bar{X}$	SD	$\bar{X}$	SD	t
Franklin Elem.	Kdg	1. Oral	14	22.71	10.71	37.85	6.38	4.51*
		2. List. Comp.		17.28	6.12	26.85	4.76	1.27
		3. Vocab. Ident.		18.28	4.89	20.28	3.61	1.10
		Total		68.28	16.26	85.00	12.11	2.85*
	1	1. Oral	25	25.08	12.56	31.60	7.08	3.00*
		2. List. Comp.		25.84	5.87	29.60	3.62	4.09*
		3. Vocab. Ident.		20.56	3.68	24.64	3.42	6.74*
		Total		81.48	18.67	85.84	10.33	1.52
	2	1. Oral	8	40.75	3.30	36.12	3.25	-6.13
		2. List. Comp.		13.75	3.03	18.87	5.66	2.91*
		3. Reading Comp.		16.75	3.45	31.75	4.38	8.00*
		4. Vocab. Ident.		26.37	1.79	26.00	2.12	-0.32
		Total		112.62	4.92	112.75	8.78	0.04
	3	1. Oral	9	30.44	7.49	39.44	6.66	4.33*
		2. List. Comp.		26.11	6.04	30.33	4.59	1.74
		3. Reading Comp.		35.55	12.29	45.00	13.29	5.19*
		4. Vocab. Ident.		27.00	2.10	28.33	2.10	1.99*
		Total		134.11	24.42	143.11	22.06	3.26*

* Statistically significant at .05 level

Language Experience Bilingual
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	SD	Post Test $\bar{X}$	SD	Correlated t
Hawkins Street	Kdg	1. Oral	15	31.20	13.78	70.80	96.88	1.43
		2. List. Comp.		24.93	5.60	30.26	4.37	4.57*
		3. Vocab. Ident.		18.93	5.25	25.33	3.06	8.14*
		Total		85.06	21.49	100.06	10.61	3.87*
	1	1. Oral	14	33.85	6.80	43.14	4.10	7.44*
		2. List. Comp.		29.00	2.59	33.71	2.11	7.25*
		3. Vocab. Ident.		23.85	1.92	28.85	1.80	9.17*
		Total		96.71	9.65	105.71	6.19	4.86*

*Statistically significant at .05 level

Language Experience Bilingual
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post Test		Corre-lated
				$\bar{X}$	SD	$\bar{X}$	SD	t
Dr.William H. Horton	Kdg.	1. Oral	31	25.12	13.18	30.09	12.25	2.08*
		2. List. Comp.		25.03	6.28	28.32	4.82	4.38*
		3. Vocab. Ident.		22.25	4.67	25.74	6.00	3.58*
		Total		82.09	21.34	83.45	19.33	0.47
	1	1. Oral	19	33.21	6.80	36.63	6.20	1.87*
		2. List. Comp.		27.68	3.96	28.52	5.10	0.74
		3. Vocab. Ident.		21,78	3.83	25.68	5.40	3.81*
		Total		92.68	11.50	90.84	13.64	-0.79
	2	1. Oral	4	18.00	15.41	25.25	9.80	1.60
		2. List. Comp.		30.25	2.77	22.00	1.73	-3.55
		3. Reading Comp.		31.00	11.11	26.25	5.16	-0.72
		4. Vocab. Ident		21.25	4.60	24.25	3.83	2.03
		Total		115.50	27.14	97.75	11.96	-1.52
	3	1. Oral	6	51.33	13.37	35.33	3.90	-2.63
		2. List. Comp.		11.33	13.78	28.00	4.83	2.27*
		3. Readg. Comp.		15.33	16.43	39.66	8.29	2.57*
		4. Vocab. Ident.		16.83	7.42	30.83	5.92	3.04*
		Total		109.83	25.17	134.00	12.20	1.68

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	Pre - Test SD	Post-Test $\bar{X}$	Post-Test SD	Corre-lated t
Burnet St.	Kdg	1. Oral	10	9.50	7.69	19.40	8.83	6.69*
		2. List. Comp.		11.80	5.85	21.40	5.50	4.76*
		3. Vocab. Ident.		12.20	5.85	20.00	2.49	4.82*
		Total		43.50	17.31	60.80	14.64	4.64*
	1	1. Oral	4	5.25	5.26	19.75	3.56	5.89*
		2. List. Comp.		13.50	4.55	22.50	4.09	2.22
		3. Vocab. Ident.		13.00	2.23	18.00	2.44	8.66*
		Total		41.75	6.09	60.25	9.62	4.66*
	3	1. Oral	10	25.00	9.88	31.70	7.61	2.35*
		2. List. Comp.		18.80	5.24	22.20	3.91	1.45
		3. Readg. Comp.		31.50	6.36	41.30	7.19	4.41*
		4. Vocab. Ident.		25.20	3.02	27.00	1.41	2.58*
		Total		115.50	18.85	122.20	9.03	1.10
	4	1. Oral	10	27.90	19.76	39.80	15.97	3.29*
		2. List. Comp.		11.40	6.28	19.00	8.07	3.60*
		3. Readg. Comp.		13.90	6.80	21.60	7.35	4.69*
		4. Vocab. Ident.		8.20	3.45	8.10	4.70	-0.08
		5. Writing Ab.		18.90	8.86	20.70	10.04	0.70
		Total		100.30	37.37	109.20	41.09	1.37
	5	1. Oral	2	0.50	0.70	23.00	7.07	4.09*
		2. List. Comp.		8.00	0	16.0	4.24	2.66
		3. Readg. Comp.		6.00	2.82	13.50	2.12	15.00*
		4. Vocab. Ident.		5.0	1.41	8.00	4.24	1.50
		5. Writing Ab.		8.0	2.82	12.50	3.53	1.00
		Total		47.50	1.50	73.00	9.00	2.42
	6	1. Oral	5	34.60	21.09	62.20	12.74	3.26*
		2. List. Comp.		12.00	3.03	12.20	2.48	0.09
		3. Reading Comp.		17.60	6.71	25.80	6.40	3.68*
		4. Writing Ab.		25.60	5.71	26.80	2.92	0.37
		Total		113.40	35.94	127.00	19.53	1.01

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\overline{X}$	Pre - Test SD	Post-Test $\overline{X}$	Post-Test SD	Corre-lated t
Abington	Kdg	1. Oral	2	8.00	8.00	7.50	2.50	-0.09
		2. List. Comp.	2	4.00	4.00	11.00	3.00	7.00*
		3. Vocab. Ident.	2	0	0	16.00	2.00	8.00*
		Total		22.00	12.00	34.50	7.50	2.77
	1	1. Oral	4	14.00	8.80	29.75	11.60	5.80*
		2. List. Comp.		18.50	9.60	30.50	7.30	8.48
		3. Vocab.Ident.		14.50	8.98	23.00	7.54	3.83*
		Total		57.00	26.58	83.25	26.51	6.80
	2	1. Oral	2	12.00	12.00	23.00	12.00	0.00
		2. List.Comp.		18.50	16.50	26.50	8.50	1.00
		3. Reading Comp.		15.00	15.00	31.00	0	1.06
		4. Vocab. Ident.		13.00	13.00	14.50	14.50	1.00
		Total		73.50	56.50	95.00	35.00	1.00
	4.	1. Oral	21	37.52	13.12	37.04	12.65	-0.21
		2. List.Comp.		10.23	5.29	19.38	7.14	5.59*
		3. Reading Comp.		13.00	7.64	20.28	6.67	3.74*
		4. Vocab. Ident.		7.28	3.52	9.61	3.68	2.49*
		5. Writing Ab.		17.61	6.84	21.61	7.16	3.27*
		Total		106.14	22.18	107.95	30.36	0.37
	6.	1. Oral	19	29.63	14.04	33.63	14.42	1.66
		2. List. Comp.		11.89	5.01	19.47	3.73	5.45*
		3. Reading Comp.		16.63	8.13	19.10	7.23	1.15
		4. Vocab. Ident.		8.15	3.68	8.58	3.11	0.52
		5. Writing Ab.		16.73	8.52	16.36	7.39	-0.27
		Total		103.05	26.77	97.15	26.36	-1.43

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	Pre - Test SD	Post-Test $\bar{X}$	Post-Test SD	Correlated t
Broadway Elementary	3	1. Oral	8	19.12	5.08	20.00	8.24	0.46
		2. List. Comp.		16.12	7.42	19.62	6.32	1.31
		3. Readg. Comp.		13.00	13.06	18.25	16.82	2.34*
		4. Vocab. Ident.		20.37	7.33	23.37	5.99	3.85*
		Total		76.12	31.66	81.25	27.90	0.67
	4	1. Oral	15	32.00	8.85	35.80	6.98	3.49*
		2. List. Comp.		14.53	4.74	17.93	5.93	2.31*
		3. Readg. Comp.		17.80	5.99	20.60	4.88	2.74*
		4. Vocab. Ident.		7.46	3.05	8.40	1.89	1.56
		5. Writing Ab.		13.53	6.07	20.73	6.58	6.06*
		Total		105.46	19.07	103.46	19.76	-0.89
	5	1. Oral	8	29.62	12.99	35.00	5.00	1.02
		2. List. Comp.		16.12	6.46	18.50	7.90	3.05*
		3. Readg. Comp.		21.50	9.15	26.25	10.30	3.00*
		4. Vocab. Ident.		10.00	4.94	11.00	5.85	0.86
		5. Writing Ab.		19.25	8.27	24.00	9.72	5.05
		Total		116.50	38.53	114.75	30.33	-0.40
	Kdg	1. Oral	5	4.80	4.01	8.40	6.15	1.83
		2. List. Comp.		14.40	4.27	18.00	5.51	2.44*
		3. Vocab. Ident.		8.80	6.42	17.60	2.93	3.95*
		Total		38.00	13.14	44.00	13.75	2.76*
	1	1. Oral	10	14.20	6.24	19.10	6.87	2.69*
		2. List. Comp.		20.00	6.92	26.40	3.87	3.07*
		3. Vocab. Ident.		17.40	4.65	19.60	7.25	0.73
		Total		61.60	15.77	65.10	12.90	0.67

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	SD	Post-Test $\bar{X}$	SD	Correlated t
	2	1. Oral	7	13.57	3.49	20.57	4.27	4.32
		2. List. Comp.		11.71	6.83	15.42	4.68	1.17
		3. Readg. Comp.		4.28	10.49	17.57	7.61	2.85*
		4. Vocab. Ident.		16.85	7.37	21.85	5.05	3.71*
		Total		61.28	13.64	75.42	10.63	2.38*
	6	1. Oral	4	51.00	2.73	56.50	6.34	1.30
		2. List. Comp.		13.00	4.63	13.75	3.03	0.24
		3. Readg. Comp.		15.25	4.32	18.00	5.33	1.02
		4. Writing Ab.		19.00	4.84	22.00	6.67	2.03
		Total		118.25	10.15	108.75	14.25	-3.06

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post-Test		Corre-lated t
				$\bar{X}$	SD	$\bar{X}$	SD	
Dayton Street	Kdg	1. Oral	2	13.50	3.50	16.50	4.50	3.00*
		2. List. Comp.		7.00	3.00	15.00	9.00	1.33
		3. Vocab. Ident.		16.00	0	20.00	0	0
		Total		46.50	6.50	51.50	13.50	0.71
	1	1. Oral	19	22.78	11.71	25.31	10.43	1.32
		2. List. Comp.		27.68	6.26	29.26	4.82	1.48
		3. Vocab. Ident.		21.47	5.38	22.21	4.24	0.98
		Total		81.94	20.95	76.78	16.73	-1.72
	2	1. Oral	3	19.00	5.65	21.66	8.49	1.14
		2. List. Comp.		10.00	0	10.00	3.74	0
		3. Readg. Comp.		12.33	3.68	19.66	7.31	2.30
		4. Vocab. Ident.		22.66	1.24	24.33	0.94	1.14
		Total		79.00	10.19	75.66	14.81	-0.09
	3	1. Oral	5	22.40	11.37	27.00	10.35	2.02*
		2. List. Comp.		14.40	4.45	22.60	3.20	5.36*
		3. Reading Comp.		22.60	3.49	26.80	2.63	1.69
		4. Vocab. Ident.		20.80	8.16	26.40	5.31	3.25*
		Total		95.20	15.99	102.80	14.09	1.50
	4	1. Oral	4	25.00	10.31	39.25	10.56	3.63*
		2. List. Comp.		15.75	2.58	18.75	3.26	1.12
		3. Reading Comp.		12.50	1.65	18.50	3.20	6.57*
		4. Vocab. Ident.		5.75	2.27	6.50	2.69	0.37
		5. Writ. Ab.		12.75	1.47	12.75	5.80	0
		Total		91.75	12.45	95.75	21.75	0.53

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post-Test		Correlated t
				$\overline{X}$	SD	$\overline{X}$	SD	
	5	1. Oral	2	22.00	1.44	27.00	1.41	2.50
		2. List. Comp.		19.50	4.50	26.50	2.50	3.50
		3. Readg. Comp.		17.50	2.50	26.50	5.50	3.00
		4. Vocab. Ident.		6.50	3.50	11.50	5.50	2.50
		5. Writing Ab.		18.50	3.50	20.0	4.00	3.00
		Total		104.00	18.38	111.50	26.16	1.36
		1. Oral	6	44.16	9.92	48.83	5.78	0.88
		2. List. Comp.		11.00	3.31	14.66	2.86	2.07*
		3. Readg. Comp.		18.33	3.34	18.66	4.34	0.13
		4. Writing Ab.		18.83	5.72	23.33	4.53	2.20*
		Total		112.33	16.56	105.50	8.71	-1.23

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post-Test		Correlated t
				$\bar{X}$	SD	$\bar{X}$	SD	
Franklin Street	Kdg	1. Oral	31	12.06	11.90	26.41	14.03	6.95*
		2. List. Comp.		13.16	6.65	18.45	6.45	5.42*
		3. Vocab. Ident.		11.48	7.83	15.09	4.86	3.14*
		Total		46.70	22.94	59.96	22.45	4.90*
	1	1. Oral	38	8.31	8.84	14.97	8.99	8.10*
		2. List. Comp.		16.89	6.80	23.05	6.75	7.73*
		3. Vocab. Ident.		14.84	15.38	17.84	5.97	1.22
		Total		47.68	18.88	55.86	18.33	5.64*
	2	1. Oral	37	21.24	13.64	35.10	53.24	1.57
		2. List. Comp.		7.81	9.14	9.37	11.05	0.65
		3. Readg. Comp.		10.97	32.33	11.51	14.28	0.09
		4. Vocab. Ident.		14.40	8.65	20.24	6.08	5.43*
		Total		63.54	28.87	64.08	33.88	0.11
	3	1. Oral	35	20.11	10.66	32.40	8.99	9.25*
		2. List. Comp.		15.88	9.84	29.48	4.52	6.32
		3. Readg. Comp.		20.11	12.94	42.28	9.73	9.01*
		4. Vocab. Ident.		18.80	6.44	24.74	4.01	8.79
		Total		90.48	32.68	128.91	19.83	7.24
	4.	1. Oral	16	35.31	11.36	33.50	10.93	-0.57
		2. List. Comp.		17.43	7.08	18.00	8.14	0.26
		3. Readg. Comp.		13.43	5.73	10.87	7.75	-1.26
		4. Vocab. Ident.		7.81	4.43	9.18	5.41	1.07
		5. Writing Ab.		16.18	9.64	21.37	9.75	2.23*
		Total		111.06	30.07	92.93	31.30	-3.04*

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post-Test		Corre-lated
				$\overline{X}$	SD	$\overline{X}$	SD	t
	5	1. Oral	17	33.47	16.25	45.05	8.78	4.42*
		2. List. Comp.		11.82	8.41	16.94	6.97	3.81*
		3. Readg. Comp		16.47	10.87	19.35	7.61	1.72
		4. Vocab. Ident.		5.76	4.95	10.35	4.87	5.32
		5. Writing Ab.		20.88	16.89	21.70	9.62	0.22
		Total		108.35	48.12	113.41	33.02	0.81
		1. Oral	22	36.50	23.63	49.81	18.34	4.13*
		2. List. Comp.		3.59	4.90	10.22	3.08	6.51*
		3. Readg. Comp.		7.95	9.93	23.27	5.56	7.87*
		4. Writing Ab.		10.95	10.45	21.86	8.58	5.34*
		Total		79.00	39.34	105.54	29.03	5.55*

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post-Test		Corre-lated t
				$\overline{X}$	SD	$\overline{X}$	SD	
Elliot St.	Kdg	1. Oral	20	3.20	5.23	10.85	10.15	2.93*
		2. List. Comp.		5.90	4.79	18.00	7.84	6.52*
		3. Vocab. Ident.		4.40	4.07	14.10	6.64	7.32*
		Total		23.50	11.82	42.95	22.76	3.69*
	1	1. Oral	46	11.82	7.62	20.02	10.76	5.75*
		2. List. Comp.		15.83	7.77	26.09	8.56	10.60*
		3. Vocab. Ident.		13.48	6.65	19.52	6.41	8.75*
		Total		51.13	18.41	65.39	23.67	6.70*
	2	1. Oral	13	13.76	11.48	24.46	14.69	4.58*
		2. List. Comp.		10.53	7.35	15.08	5.94	2.02*
		3. Reading Comp.		10.69	7.84	21.30	8.02	3.74*
		4. Vocab. Ident.		14.30	8.76	18.38	7.05	4.28*
		Total		64.23	30.12	79.23	26.81	3.33*
	3	1. Oral	14	24.71	11.10	31.57	14.82	3.17*
		2. List. Comp.		15.43	7.21	17.71	6.90	1.13
		3. Readg. Comp.		22.71	9.33	32.86	10.43	3.38*
		4. Vocab. Ident.		18.79	7.16	22.57	6.82	4.73*
	4	1. Oral	19	31.89	29.36	38.42	24.28	1.61
		2. List. Comp.		14.68	12.88	19.26	12.42	1.52
		3. Readg. Comp.		15.11	10.14	20.32	13.05	2.13*
		4. Vocab. Ident.		7.53	6.73	9.53	8.89	1.01
		5. Writing Ab.		18.0	17.63	23.79	16.45	1.33
		Total		106.73	31.30	114.47	28.90	1.04
	6	1. Oral	9	39.22	28.60	50.67	18.79	3.03*
		2. List. Comp.		4.44	4.69	10.55	5.37	1.79
		3. Readg. Comp.		12.55	9.77	20.22	9.42	1.32
		4. Writing Ab.		20.44	10.25	26.11	7.62	1.20
		Total		97.66	44.10	107.55	30.35	0.71

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	SD	Post-Test $\bar{X}$	SD	Corre-lated t
Hawkins Street	Kdg.	1. Oral	14	10.71	10.48	27.50	10.52	10.26*
		2. List. Comp.		9.28	7.95	19.00	6.95	5.93
		3. Vocab. Ident.		8.28	6.62	18.42	6.89	9.58*
		Total		38.28	24.34	64.92	22.13	8.99*
	1	1. Oral	9	15.55	9.92	26.44	12.39	7.19*
		2. List. Comp.		17.11	8.64	28.44	4.69	4.58*
		3. Vocab. Ident.		14.66	7.77	22.22	5.69	5.89*
		Total		57.33	25.59	77.11	21.86	5.75*
	2	1. Oral	9	8.66	6.79	21.11	6.15	5.70*
		2. List. Comp.		8.88	9.53	16.11	6.91	1.72
		3. Readg. Comp.		8.33	9.33	26.88	10.64	5.21*
		4. Vocab. Ident.		13.00	7.30	20.22	3.90	4.33*
		Total		53.88	29.27	78.77	26.74	2.59*
	3	1. Oral	12	27.66	9.67	34.16	7.66	5.06*
		2. List. Comp.		18.58	7.07	27.50	7.74	3.54*
		3. Read. Comp.		28.75	10.11	43.00	9.97	5.86*
		4. Vocab. Ident.		26.83	2.03	28.00	1.58	3.92*
		Total		116.83	22.58	132.91	21.43	4.04*
	4	1. Oral	10	39.90	17.42	46.00	11.98	1.98*
		2. List. Comp.		18.60	6.90	20.20	5.49	0.85
		3. Readg. Comp.		18.30	7.51	21.30	5.76	1.96*
		4. Vocab. Ident.		18.40	8.16	23.90	7.56	2.59*
		5. Writ. Ab.		20.10	9.61	26.90	10.99	2.97*
		Total		126.80	42.36	128.80	32.63	0.23

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post-Test		Correlated
				$\overline{X}$	SD	$\overline{X}$	SD	t
	5	1. Oral	5	39.60	20.71	41.40	16.56	0.49
		2. List. Comp.		17.00	10.71	23.40	6.91	1.56
		3. Reading Comp.		13.00	8.53	23.00	6.57	10.00*
		4. Vocab. Ident.		5.80	4.40	9.20	5.15	1.38
		5. Writing Ab.		17.80	12.20	25.20	12.63	10.91
		Total		113.20	52.33	122.20	46.91	1.18
	6	1. Oral	3	48.33	0.94	57.00	5.35	2.63
		2. List. Comp.		6.66	1.69	13.33	0.94	7.55*
		3. Readg. Comp.		18.33	4.49	24.00	4.96	16.99*
		4. Writing Ab.		18.66	7.40	23.33	11.61	1.32
		Total		112.00	12.83	117.66	20.41	0.93

* Statistically significant at .05 level

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Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post-Test		Corre-lated
				$\bar{X}$	SD	$\bar{X}$	SD	t
Dr. Horton School	Kdg	1. Oral	28	1.50	2.52	5.28	9.07	2.10*
		2. List. Comp.		12.35	6.25	14.57	8.41	1.67
		3. Vocab. Ident.		8.71	5.78	15.07	7.82	5.41*
		Total		32.21	10.81	35.00	22.09	0.81
	1	1. Oral	13	11.53	14.30	22.15	12.40	3.01*
		2. List. Comp.		20.76	3.28	24.00	5.65	2.82*
		3. Vocab. Ident.		18.92	16.46	20.15	5.11	0.25
		Total		56.61	20.34	66.30	21.25	2.64*
	2	1. Oral	33	13.78	11.53	15.21	8.43	0.92
		2. List. Comp.		26.93	6.14	23.66	8.10	-2.16
		3. Readg. Comp.		31.33	13.00	26.33	6.84	-2.61
		4. Vocab. Ident.		18.66	11.54	19.69	7.35	0.66
		Total		104.21	28.25	84.03	21.43	-5.10
	3	1. Oral	27	18.22	9.04	25.62	7.58	7.69*
		2. List. Comp.		16.66	7.51	22.81	5.98	4.56*
		3. Readg. Comp.		22.85	8.37	28.33	9.20	3.69*
		4. Vocab. Ident.		21.74	8.45	24.88	4.49	2.37*
		Total		93.33	26.68	101.66	21.31	3.74*
	6	1. Oral	12	35.66	12.68	42.66	14.49	1.75
		2. List. Comp.		4.25	4.45	11.91	4.48	3.40*
		3. Readg. Comp.		8.58	9.54	21.50	9.69	2.89*
		4. Writing Ab.		14.16	8.31	24.16	6.50	3.95*
		Total		82.66	22.80	100.25	24.27	2.02*

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post-Test		Correlated t
				$\bar{X}$	SD	$\bar{X}$	SD	
Miller St.	1	1. Oral	14	9.35	7.25	19.21	6.61	9.40*
		2. List. Comp.		12.42	7.37	20.28	5.79	5.96*
		3. Vocab. Ident.		9.85	7.42	20.85	5.43	7.51*
		Total		41.64	19.51	60.35	16.22	7.58*
	2	1. Oral	12	17.16	9.38	13.91	7.08	- 1.93
		2. List. Comp.		7.75	5.24	17.00	6.77	2.98*
		3. Readg. Comp.		15.50	8.90	26.41	7.64	3.96*
		4. Vocab. Ident.		15.08	8.53	20.83	5.69	3.71*
		Total		70.50	24.51	78.16	17.50	1.13
	3	1. Oral	15	13.40	10.24	22.86	11.17	3.75*
		2. List. Comp.		9.26	4.93	24.33	6.16	8.55*
		3. Reading Comp.		19.46	6.84	33.06	10.40	8.17*
		4. Vocab. Ident.		19.00	6.35	23.73	6.12	6.23*
		Total		76.13	23.43	104.00	27.13	6.85*
	4	1. Oral	13	24.46	13.88	31.92	14.00	2.77*
		2. List. Comp.		13.76	5.22	13.30	8.22	- 0.18
		3. Reading Comp.		13.15	3.91	10.92	9.35	- 0.77
		4. Vocab. Ident.		5.69	2.81	7.53	5.31	1.02
		5. Writing Ab.		18.92	5.78	16.38	10.67	- 0.71
		Total		92.15	28.28	80.07	28.14	- 1.23
	5	1. Oral	5	19.00	10.15	25.60	12.37	3.54*
		2. List. Comp.		15.80	2.78	22.40	4.96	3.19*
		3. Reading Comp.		19.00	7.18	26.20	8.77	1.67
		4. Vocab. Ident.		9.60	3.20	9.20	5.84	- 0.20
		5. Writing Ab.		18.40	8.77	22.20	6.85	2.88*
		Total		101.80	22.03	105.60	36.13	0.47

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\overline{X}$	Pre - Test SD	Post-Test $\overline{X}$	Post-Test SD	Corre-lated t
	6	1. Oral	5	33.40	17.14	51.60	7.28	2.14*
		2. List. Comp.		11.00	4.28	9.20	4.79	-0.71
		3. Reading Comp.		19.60	8.28	23.40	12.19	0.67
		4. Writing Ab.		18.00	6.13	20.80	9.60	1.20
		Total		102.00	31.12	108.80	26.57	0.49

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	SD	Post-Test $\bar{X}$	SD	Corre-lated t
McKinley		1. Oral	20	7.20	7.27	13.40	12.10	3.89*
		2. List. Comp.		7.10	5.94	14.25	9.07	4.41*
	Kdg.	3. Vocab. Ident.		7.85	4.71	15.40	7.24	6.76*
		Total		32.15	14.32	43.70	27.09	3.24*
		1. Oral	7	8.85	3.52	11.14	5.69	1.62
		2. List. Comp.		12.57	6.73	16.57	7.83	2.76*
	1	3. Vocab. Ident.		10.85	5.11	15.71	7.28	4.24*
		Total		42.28	14.45	43.42	19.30	0.36
		1. Oral	6	12.83	6.36	13.00	5.80	0.12
		2. List. Comp.		7.66	4.64	10.16	8.07	0.62
		3. Readg. Comp.		9.83	4.59	14.16	8.59	0.94
	2	4. Vocab. Ident.		12.66	6.92	16.66	5.99	2.44*
		Total		58.00	18.47	54.00	19.77	-0.50
		1. Oral	17	19.76	11.45	27.05	8.92	2.56*
		2. List. Comp.		17.64	7.27	21.47	6.63	2.60*
	3	3. Readg. Comp.		19.00	8.74	32.82	8.26	4.47*
		4. Vocab. Ident.		19.82	8.01	26.52	2.85	3.19*
		Total		91.11	13.48	107.88	19.67	3.88*
		1. Oral	16	26.06	13.10	32.12	16.62	3.88*
		2. List. Comp.		18.81	5.10	19.93	7.74	0.94
	4	3. Readg. Comp.		12.62	4.68	16.93	7.51	3.47*
		4. Vocab. Ident.		5.37	2.61	7.06	3.41	2.57*
		5. Writing Ab.		13.43	5.78	16.12	7.92	1.84*
		Total		95.06	23.09	92.18	34.20	-0.65

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test		Post-Test		Correlated t
				$\bar{X}$	SD	$\bar{X}$	SD	
	5	1. Oral	13	31.53	11.21	41.61	10.76	8.35*
		2. List. Comp.		16.84	6.75	20.69	3.74	2.62*
		3. Reading Comp.		15.23	5.76	21.53	5.51	2.59*
		4. Vocab. Ident.		6.76	3.11	10.30	3.21	3.02*
		5. Writing Ab.		16.69	6.43	25.07	7.43	5.89*
		Total		107.07	28.63	118.46	20.01	2.44*
	6	1. Oral	5	55.40	5.88	62.20	5.19	1.93
		2. List. Comp.		11.20	3.86	14.20	2.92	4.74*
		3. Readg.Comp.		18.40	5.78	19.60	3.72	0.35
		4. Writing Ab.		22.20	5.03	26.60	3.72	3.64*
		Total		126.00	13.72	127.40	9.32	0.23

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

				Pre - Test		Post-Test		Corre-lated
School	Grade Level	Subtest	N	$\overline{X}$	SD	$\overline{X}$	SD	t
South Street	Kdg	1. Oral	20	8.55	8.72	8.55	9.15	0.00
		2. List. Comp.		12.40	8.33	19.50	6.19	5.48*
		3. Vocab. Ident.		9.70	6.38	21.00	6.76	9.11*
		Total		39.95	18.27	49.05	18.05	3.11*
	1	1. Oral	31	14.58	9.93	15.22	9.71	0.38
		2. List. Comp.		17.09	6.28	22.77	8.93	3.25*
		3. Vocab. Ident.		15.48	4.65	21.09	5.51	6.36*
		Total		57.16	16.90	59.09	19.09	0.70
	2	1. Oral	15	16.53	8.04	16.13	6.40	-0.16
		2. List. Comp.		13.53	6.53	24.46	5.32	5.74*
		3. Readg. Comp.		19.00	7.29	28.00	8.55	3.45*
		4. Vocab. Ident.		14.60	6.49	19.93	5.88	3.90*
		Total		79.33	21.41	88.53	14.97	2.39*
	3	1. Oral	17	21.00	8.86	26.05	7.04	2.35*
		2. List. Comp.		15.35	4.78	25.41	5.16	7.45*
		3. Readg. Comp.		30.00	5.45	29.94	6.34	-0.04
		4. Vocab. Ident.		23.41	4.55	26.23	3.11	3.05*
		Total		104.76	14.92	107.64	14.35	1.18
	4	1. Oral	13	23.92	10.78	23.46	11.14	-0.16
		2. List. Comp.		12.46	5.37	15.07	6.59	1.31
		3. Rdg. Comp.		13.30	6.42	19.15	5.62	4.30*
		4. Vocab. Ident.		4.15	2.59	10.46	6.19	4.25*
		5. Writing Ab.		15.15	8.31	18.84	6.11	2.21*
		Total		89.00	26.27	86.23	28.21	-0.68
	5.	1. Oral	2	39.50	2.50	32.00	0.00	-3.00
		2. List. Comp.		19.00	2.00	24.50	2.50	11.00*
		3. Readg. Comp.		20.50	1.50	33.50	3.50	2.60
		4. Vocab. Ident.		7.00	1.00	22.00	2.00	15.00*
		5. Writing Ab.		20.00	8.00	30.00	3.00	2.00
		Total		126.00	12.00	142.00	11.00	16.00*

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\overline{X}$	Pre - Test SD	Post-Test $\overline{X}$	Post-Test SD	Corre-lated t
Roberto Clemente	Elem. Bdg	1. Oral	31	9.70	11.84	10.09	6.45	0.17
		2. List. Comp.		13.41	8.39	20.96	6.40	6.95*
		3. Vocab. Ident.		10.06	5.95	18.32	5.40	9.09*
		Total		43.51	17.79	49.38	15.37	2.52*
	1	1. Oral	16	8.43	13.45	15.50	12.44	2.65*
		2. List. Comp.		17.00	7.51	22.37	5.01	4.55*
		3. Vocab. Ident		13.68	7.31	17.12	6.16	3.76*
		Total		48.81	25.01	55.00	22.30	1.83*
	2	1. Oral	31	24.96	11.19	29.54	11.55	2.32*
		2. List. Comp.		14.51	5.91	22.70	6.03	6.91*
		3. Readg. Comp.		16.45	7.54	28.41	7.36	10.45*
		4. Vocab. Ident.		19.45	8.05	23.87	5.72	5.01*
		Total		90.87	26.59	104.35	25.90	4.56*
	3	1. Oral	45	34.33	6.01	40.20	4.79	6.63*
		2. List. Comp.		22.91	7.38	30.68	4.55	7.78*
		3. Readg. Comp.		27.28	10.03	42.44	8.49	13.16*
		4. Vocab. Ident.		26.77	2.90	28.26	1.51	3.85*
		Total		127.02	21.21	141.00	16.06	4.72
	4	1. Oral	8	38.25	17.81	40.87	10.34	0.47
		2. List. Comp.		10.12	5.79	17.25	7.41	2.34*
		3. Readg. Comp.		15.25	9.07	19.75	4.73	1.35
		4. Vocab. Ident.		7.00	2.69	8.25	1.08	1.09
		5. Writing Ab.		18.25	7.61	22.37	7.77	1.78
		Total		108.87	32.24	108.50	24.03	-0.05

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	Pre - Test SD	Post-Test $\bar{X}$	Post-Test SD	Corre-lated t
	5	1. Oral	5	23.40	13.85	42.40	9.24	6.10*
		2. List. Comp.		13.80	4.11	23.60	4.27	4.75*
		3. Reading Comp.		5.20	1.93	17.40	5.20	3.97*
		4. Vocab. Ident.		5.60	2.57	10.00	1.78	2.51*
		5. Writing Ab.		19.20	7.85	24.20	8.15	3.37*
		Total		87.20	24.21	119.60	21.75	11.86*
	6	1. Oral	11	23.18	22.83	48.45	22.07	3.16*
		2. List. Comp.		3.36	3.96	10.09	3.57	4.21*
		3. Readg. Comp.		5.36	6.51	18.54	5.86	4.31*
		4. Writing Ab.		9.00	3.04	21.90	6.30	6.23*
		Total		61.81	20.19	90.90	39.13	2.52*

* Statistically significant at .05 level

Program for English Proficiency
Non-Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	Pre - Test SD	Post-Test $\bar{X}$	Post-Test SD	Correlated t
Saint Columba	1	1. Oral	11	28.54	5.31	34.36	9.74	2.48*
		2. List. Comp.		25.27	5.98	31.63	3.17	4.11*
		3. Vocab. Ident.		22.72	4.53	26.36	3.05	2.88*
		Total		86.27	13.75	92.36	14.68	1.93
	4	1. Oral	6	28.33	6.99	35.16	8.13	5.58*
		2. List. Comp.		14.83	6.36	21.00	5.35	1.76
		3. Readg. Comp.		18.66	6.96	17.66	6.23	-0.53
		4. Vocab. Ident.		6.66	3.39	8.16	3.84	1.06
		5. Writing Ab.		19.00	7.93	18.66	4.45	-0.08
		Total		109.16	26.96	103.66	25.02	-1.33
	5	1. Oral	6	35.16	8.70	43.50	10.76	1.31
		2. List. Comp.		19.33	5.28	22.00	11.73	0.58
		3. Readg. Comp.		15.66	9.74	22.16	9.95	3.15*
		4. Vocab. Ident.		9.16	6.51	11.33	5.73	1.21
		5. Writing Ab.		20.50	12.05	25.50	11.72	1.88
		Total		118.16	31.59	107.83	62.68	-0.51
	6	1. Oral		50.40	6.85	58.40	4.02	2.88*
		2. List. Comp.		8.80	5.56	14.40	3.26	2.31*
		3. Readg. Comp.		17.00	9.65	27.20	6.01	2.28
		4. Writing Ab.		24.00	7.29	27.20	4.99	0.94
		Total		121.00	25.87	127.20	16.47	0.50

* Statistically significant at .05 level

Program for English Proficiency
Public Schools

School	Grade Level	Subtest	N	Pre - Test $\bar{X}$	SD	Post-Test $\bar{X}$	SD	Correlated t
Sussex Ave.	Kdg	1. Oral	8	5.50	6.00	6.75	8.04	0.65
		2. List. Comp.		13.00	8.12	13.00	10.00	0.00
		3. Vocab. Ident.		9.00	6.16	15.25	5.19	4.51*
		Total		37.50	18.02	40.25	19.71	0.83
	1	1. Oral	5	11.80	7.13	13.40	8.40	0.74
		2. List. Comp.		21.20	8.90	24.40	9.66	1.20
		3. Vocab. Ident.		18.00	9.20	20.00	8.67	1.29
		Total		61.00	24.66	57.80	25.79	-0.65
	2	1. Oral	7	11.14	4.61	15.00	7.81	2.44*
		2. List. Comp.		17.14	5.96	20.71	3.73	1.30
		3. Reading Comp.		14.42	5.60	21.28	6.98	2.09*
		4. Vocab. Ident.		18.14	6.01	23.14	4.15	2.95*
		Total		76.57	18.06	80.14	16.94	0.77

* Statistically significant at .05 level

Mean and Standard Deviations for Each Reading Subtest, Metropolitan Achievement Test (MAT), All Grades, Public Schools, 1980-81

		WORD KNOWLEDGE		READING COMPREHENSION		TOTAL READING	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Abington Avenue	6	28.23	8.58	28.33	5.71	28.33	6.65
Alexander Street	21	36.23	7.23	35.91	6.68	36.04	6.38
Avon Avenue	20	40.35	5.86	36.00	7.86	37.03	5.83
Bragaw	10	39.55	13.62	39.00	6.92	37.90	9.44
Belmont Runyon	18	43.10	10.52	39.73	9.45	41.14	8.10
Bergen Street	36	39.41	10.02	37.58	10.87	37.52	9.45
Broadway Elementary	25	36.90	9.61	35.31	7.85	49.04	7.98
Burnet Street	2	44.67	12.50	38.67	7.13	35.50	6.50
Camden St. Elementary	27	47.00	10.20	39.70	8.21	37.62	8.81
Chancellor Avenue	35	40.33	10.63	38.22	9.70	38.55	9.51
Clinton Avenue	21	41.09	11.94	41.47	6.99	40.42	8.07
Dayton Street	22	36.08	8.14	36.07	10.53	35.17	6.55
Eighteenth Street	23	30.86	6.73	37.65	6.18	34.43	6.02
Elliot Street School	3	27.66	4.92	36.66	2.62	30.66	3.77
Franklin Elementary	13	45.15	12.06	45.15	8.16	44.84	11.54
Fifteenth Avenue	27	41.86	14.61	41.40	13.73	41.86	14.61
First Avenue	18	30.77	5.95	32.50	5.27	30.83	5.00
Fourteenth Avenue	19	36.73	9.55	38.68	6.96	36.89	7.76
George Washington Carver	45	38.31	10.81	40.40	8.53	38.66	9.53
Harnet Tubman	25	33.40	7.21	36.76	6.54	34.70	6.72

		WORD KNOWLEDGE		READING COMPREHENSION		TOTAL READING	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Hawthorne Avenue	25	38.21	8.19	36.10	6.59	36.52	6.93
Lincoln	32	39.62	11.03	40.46	11.15	39.25	10.25
Louise A. Spencer	28	31.18	9.04	35.37	7.78	33.18	6.65
Maple Avenue	31	36.85	9.26	35.66	8.13	35.51	8.39
Marcus Garvey	3	55.00	2.82	57.00	4.54	54.33	2.49
Dr. M. L. King	51	37.84	11.13	40.76	6.63	38.41	7.88
McKinley	15	38.50	8.71	37.93	6.37	37.68	6.04
Miller Street	10	45.60	5.23	38.60	7.86	41.60	4.84
Morton Street	26	36.23	8.45	35.57	5.37	35.34	6.02
Newton Street	7	37.83	5.14	33.00	5.38	35.50	4.92
Peshine Avenue	36	40.04	9.52	39.36	6.16	39.13	6.65
Quitman Street	19	27.66	13.54	32.66	4.83	28.87	8.29
Roberto Clemente	20	39.30	7.75	37.35	7.09	37.75	6.50
Roseville Avenue	16	37.50	12.70	39.37	7.63	37.06	8.78
South Street	11	41.27	8.09	42.63	9.41	41.81	7.69
South 17th Street	43	37.81	9.41	36.30	6.98	36.09	7.31
Speedway Avenue	25	33.51	10.64	32.72	8.19	32.10	8.31
Sussex Avenue	19	30.12	13.11	30.62	6.34	29.37	8.91
Thirteenth Avenue	52	33.36	8.97	32.34	7.68	32.05	6.88
Warren Street	12	40.66	8.72	34.08	7.20	36.33	5.80
Dr. William Horton	26	34.38	9.93	31.00	6.92	31.68	7.82
District Totals	923	37.76	10.43	37.44	8.69	36.96	8.52
No. of schools scoring above criteria		20		21		18	
Percentage of schools scoring above criteria		.49%		.51%		.44%	

APPENDIX D

TITLE I STATISTICAL DATA (NONCOGNITIVE AREAS)

PUBLIC AND NONPUBLIC SCHOOL BY PROGRAM

Language Experience
Public Schools

Grade Level	Non-Cognitive Category	N	Pre-Test		Post-Test		
			SD	$\overline{X}$	SD	$\overline{X}$	G
1.	1. Vision & Auditory	554	55.47	2.36	66.51	2.82	0.46*
	2. Concentration	552	49.63	2.13	62.89	2.68	0.55*
	3. Dental & Medical	552	61.56	2.62	70.07	3.01	0.35
	4. Vision & Auditory	552	58.80	2.50	66.67	2.92	0.42*
2.	1. Concentration	329	36.97	1.99	52.44	2.66	0.67*
	2. Visual/Auditory	329	43.58	2.40	52.44	2.88	0.48*
	3. Dental & Medical	329	49.13	2.71	55.80	3.07	0.36
	4. Vision & Auditory	329	43.52	2.62	55.36	3.05	0.43
3.	1. Attentiveness	663	56.96	2.20	71.48	2.79	0.59*
	2. Concentration	663	55.71	2.16	71.36	2.77	0.61*
	3. Cultural Awareness	663	60.75	2.37	73.93	2.87	0.50*
	4. Attendance	663	72.07	2.80	83.51	3.24	0.44*
4.	1. Attentiveness	860	64.09	2.19	80.97	2.75	0.56*
	2. Concentration	870	65.25	2.21	80.12	2.70	0.49*
	3. Concentration	883	67.39	2.27	81.54	2.78	0.51*
	4. Cultural Awareness	873	68.86	2.33	83.46	2.84	0.51*
5.	1. Maturation	673	58.57	2.26	75.42	2.91	0.65*
	2. Concentration	671	59.63	2.30	76.32	2.96	0.66*
	3. Cultural Awareness	672	62.24	2.40	77.92	3.00	0.60*
	4. Speech	675	63.56	2.45	78.85	3.05	0.60*
6.	1. Maturation	607	58.31	2.37	71.96	2.92	0.55*
	2. Concentration	607	57.01	2.32	71.84	2.92	0.60*
	3. Social Services	603	62.32	2.54	73.17	2.99	0.45*
	4. Cultural Awareness	607	60.17	2.44	73.07	2.97	0.53*
7.	1. Maturation	428	52.08	2.52	63.03	3.04	0.52*
	2. Improve Concentration	427	48.54	2.47	62.58	3.04	0.57*
	3. Cultural Awareness	427	54.60	2.64	61.46	3.17	0.53*
	4. Speech Services	417	53.85	2.64	69.97	3.13	0.49

Grade Level	Non-Cognitive Category	N	Pre-Test		Post-Test		G
			SD	$\bar{X}$	SD	$\bar{X}$	
8.	1. Speech	239	41.99	2.72	48.92	3.18	0.46
	2. Cultural Awareness	238	42.47	2.76	48.90	3.19	0.43
	3. Concentration	236	37.65	2.45	46.48	3.02	0.57*
	4. Attendance Services	238	39.16	2.79	50.13	3.25	0.46
9.	1. Maturation	427	53.99	2.61	72.57	3.51	0.90*
	2. Eye-Hand Coordination	427	59.25	2.87	75.76	3.67	0.80*
	3. Develop Form Perception	427	57.85	2.80	74.30	3.60	0.80*
	4. Need Attendance Service	427	57.33	2.78	73.77	3.57	0.79*

* Statistically significant at .05 level

Language Experience
Non-Public Schools

Grade Level	Non-Cognitive	N	Pre-Test		Post-Test		
			SD	$\bar{X}$	SD	$\bar{X}$	G
1.	1. Vision & Auditory	58	16.08	2.08	20.50	2.71	0.63
	2. Concentration	58	14.63	1.96	19.99	2.64	0.68
	3. Dental & Medical	58	18.70	2.47	22.07	2.91	0.44
	4. Vision & Auditory	58	17.00	2.24	20.45	2.75	0.51
2.	1. Concentration	37	12.93	2.14	14.89	2.46	0.32
	2. Visual/Auditory	37	12.93	2.14	15.06	2.56	0.42
	3. Dental & Medical	37	15.21	2.51	19.46	3.22	0.71
	4. Vision & Auditory	37	13.74	2.27	17.50	2.89	0.62
3.	1. Attentiveness	68	16.93	2.06	20.35	2.49	0.43
	2. Concentration	68	16.08	1.97	19.99	2.45	0.48
	3. Cultural Awareness	67	16.44	2.01	19.85	2.43	0.42
	4. Attendance	68	25.82	3.16	26.71	3.25	0.09
4.	1. Attentiveness	60	15.83	2.05	17.62	2.28	0.23
	2. Concentration	60	15.05	1.95	18.13	2.39	0.44
	3. Concentration	60	15.18	1.97	18.13	2.39	0.42
	4. Cultural Awareness	60	15.58	2.02	16.98	2.20	0.18
5.	1. Maturation	67	19.26	2.36	22.28	2.73	0.37
	2. Concentration	67	17.79	2.18	22.27	2.73	0.55
	3. Cultural Awareness	68	19.86	2.43	22.38	2.73	0.55
	4. Speech	67	20.60	2.52	22.52	2.76	0.24
6.	1. Maturation	68	16.92	2.06	25.77	3.13	1.07*
	2. Concentration	69	17.27	2.09	26.62	3.24	1.15*
	3. Social Services	68	18.97	2.31	27.66	3.39	1.08*
	4. Cultural Awareness	67	17.17	2.10	28.78	3.50	1.40*
7.	1. Maturation	27	13.51	2.63	16.45	3.19	0.56
	2. Improve Concentration	27	12.20	2.37	14.55	2.81	0.44
	3. Develop Culture Awareness	27	15.16	2.96	16.95	3.30	0.34
	4. Need of Speech Services	27	15.02	2.93	16.83	3.26	0.33
8.	1. Speech	12	8.99	2.67	9.95	3.00	0.33
	2. Cultural Awareness	12	8.99	2.67	9.95	3.00	0.33
	3. Concentration	12	7.30	2.17	8.99	2.67	0.50
	4. Attendance Services	12	9.72	2.92	9.72	2.92	0.00

*Statistically significant at .05 level

Computational Skills
Public Schools

Grade Level	Non-Cognitive Category	N	Pre-Test		Post-Test		G
			SD	$\overline{X}$	SD	$\overline{X}$	
1.	1. Improve Concentration	515	46.69	2.06	60.83	2.67	0.61*
	2. Improve Vision/Auditory Problems	523	53.28	2.33	63.66	2.80	0.47*
	3. Dental & Medical	521	59.16	2.59	67.69	2.97	0.38
	4. Vision & Auditory	521	56.90	2.49	66.08	2.90	0.41*
2.	1. Improve Concentration	263	31.98	1.97	43.75	2.72	0.75*
	2. Improve Vision Problem	262	39.69	2.45	47.30	2.94	0.49
	3. Vision & Auditory	259	42.39	2.64	48.63	3.02	0.38
	4. Dental & Medical	253	43.52	2.74	49.06	3.06	0.32
3.	1. Improve Concentration	565	49.70	2.07	64.06	2.73	0.66*
	2. Improve Attentiveness	562	50.94	2.15	65.88	2.78	0.63*
	3. Cultural Awareness	563	51.15	2.33	70.82	2.99	0.66*
	4. Concentration	565	53.66	2.26	68.49	2.88	0.62*
4.	1. Improve Concentration	612	52.82	2.14	65.66	2.66	0.52*
	2. Improve Attentiveness	609	53.96	2.19	66.80	2.72	0.53*
	3. Concentration	605	57.59	2.34	63.60	2.58	0.24
	4. Cultural Awareness	609	57.40	2.33	69.95	2.81	0.48*
5.	1. Improve Maturation	480	45.50	2.26	63.67	2.91	0.65*
	2. Improve Concentration	480	49.73	2.27	63.09	2.91	0.64*
	3. Speech	475	52.79	2.44	64.67	2.95	0.51*
	4. Cultural Awareness	479	53.57	2.44	64.70	2.95	0.51*
6.	1. Improve Concentration	496	50.67	2.28	64.03	2.87	0.59*
	2. Improve Concentration	501	52.03	2.32	64.97	2.90	0.58*
	3. Social Services	496	56.01	2.51	66.40	3.01	0.50*
	4. Cultural Awareness	508	54.32	2.41	66.71	2.98	0.51*
7.	1. Improve Concentration	318	43.77	2.45	52.79	2.96	0.51*
	2. Improve Maturation	317	44.00	2.47	53.12	2.99	0.52*
	3. Speech	309	45.53	2.59	53.41	3.05	0.46
	4. Cultural Awareness	317	45.79	2.57	53.42	3.00	0.43
8.	1. Improve Concentration	192	34.38	2.48	31.41	2.26	0.22
	2. Improve Maturation	192	35.01	2.53	41.41	3.00	0.47
	3. Speech	193	37.30	2.68	41.14	2.97	0.29
	4. Cultural Awareness	192	37.54	2.71	42.62	3.07	0.36

*Statistically significant at .05 level

Computational Skills
Non-Public Schools

Grade Level	Non-Cognitive		N	Pre-Test		Post-Test		G
				SD	$\overline{X}$	SD	$\overline{X}$	
1.	1.	Improve Concentration	43	13.19	2.02	17.26	2.65	0.63
	2.	Improve Vision/Auditory Problems	43	13.16	2.03	17.69	2.70	0.67
	3.	Dental & Medical	43	14.49	2.50	18.70	2.90	0.40
	4.	Vision & Auditory	43	16.97	2.60	17.69	2.70	0.10
2.	1.	Improve Concentration	21	12.10	2.67	14.26	3.14	0.47
	2.	Improve Vision Problem	21	12.28	2.71	14.26	3.14	0.43
	3.	Vision & Auditory	21	11.87	2.62	14.69	3.24	0.62
	4.	Dental & Medical	21	12.28	2.71	15.98	3.52	0.81
3.	1.	Improve Concentration	36	12.43	2.08	15.90	2.67	0.59
	2.	Improve Attentiveness	36	13.09	2.19	15.90	2.67	0.48
	3.	Cultural Awareness	36	15.20	2.56	16.18	2.72	0.16
	4.	Concentration	36	12.92	2.17	15.90	2.67	0.50
4.	1.	Improve Concentration	40	14.32	2.28	16.96	2.70	0.42
	2.	Improve Attentiveness	40	14.32	2.28	16.80	2.68	0.40
	3.	Concentration	40	14.32	2.28	16.64	2.65	0.37
	4.	Cultural Awareness	40	14.93	2.38	16.80	2.68	0.30
5.	1.	Improve Maturation	51	19.12	2.69	19.12	2.69	0.00
	2.	Improve Concentration	51	18.57	2.61	19.12	2.69	0.08
	3.	Speech	51	20.10	2.82	19.39	2.73	0.09
	4.	Cultural Awareness	51	19.55	2.75	18.96	2.67	0.08
6.	1.	Improve Concentration	51	15.74	2.22	23.31	3.27	1.05*
	2.	Improve Maturation	51	15.74	2.22	23.88	3.35	1.13*
	3.	Social Services	51	17.98	2.53	24.84	3.49	0.96
	4.	Cultural Awareness	51	17.69	2.49	25.26	3.55	1.06*
[illegible]	1.	Improve Concentration	32	13.88	2.47	15.83	2.81	0.34
	2.	Improve Maturation	32	14.57	2.59	17.06	3.03	0.44
	3.	Speech	32	16.57	2.97	18.05	3.22	0.25
	4.	Cultural Awareness	32	16.76	3.00	18.21	3.25	0.25

Program for English Proficiency
Public Schools

Grade Level	Non-Cognitive	N	Pre-Test SD	Pre-Test X̄	Post-Test SD	Post-Test X̄	G
1.	1. Concentration	220	36.00	2.44	46.00	3.12	0.68*
	2. Self-Control	220	36.86	2.49	47.42	3.20	0.71*
	3. Dental & Medical	220	42.07	2.84	49.17	3.32	0.48
	4. Vision & Hearing	220	42.07	2.84	49.17	3.32	0.48
2.	1. Concentration	108	25.45	2.45	34.10	3.29	0.84
	2. Self-Control	108	26.50	2.56	35.06	3.38	0.82
	3. Dental & Medical	108	28.97	2.80	36.20	3.49	0.69
	4. Vision & Hearing	108	29.63	2.86	36.48	3.52	0.66
3.	1. Concentration	122	26.66	2.42	33.45	3.03	0.61
	2. Self-Control	122	29.10	2.64	35.35	3.21	0.55
	3. Dental & Medical	122	30.80	2.78	37.24	3.38	0.60
	4. Vision & Hearing	122	30.75	2.79	37.34	3.38	0.59
4.	1. Attentiveness	118	27.39	2.53	36.40	3.36	0.83
	2. Auditory Association	118	29.23	2.70	37.13	3.42	0.72
	3. Attendance	118	31.32	2.96	37.87	3.49	0.53
	4. Nutrition	118	32.67	3.05	37.87	3.49	0.44
5.	1. Attentiveness	101	24.93	2.49	32.47	3.24	0.75
	2. Auditory Association	102	26.38	2.63	33.05	3.30	0.67
	3. Attendance	102	27.60	2.75	33.20	3.29	0.54
	4. Nutrition	100	29.10	2.92	33.82	3.39	0.47
6.	1. Attentiveness	38	21.87	3.55	25.02	4.08	0.53
	2. Auditory Association	39	19.95	3.21	23.90	3.92	0.71
	3. Nutrition	38	20.85	3.40	25.03	4.08	0.66
	4. Attendance	38	23.90	3.90	25.16	4.11	0.21

*Statistically significant at .05 level

Program for English Proficiency
Non-Public Schools

Grade Level	Non-Cognitive	N	Pre-Test SD	Pre-Test $\bar{X}$	Post-Test SD	Post-Test $\bar{X}$	G
1.	1. Concentration	20	9.95	2.25	14.06	3.20	0.95
	2. Self-Control	20	10.16	2.30	12.28	2.80	0.50
	3. Dental & Medical	20	12.26	2.80	12.68	2.90	0.10
	4. Vision & Hearing	20	12.26	2.80	12.48	2.85	0.05
2.	1. Concentration	*	*	*	*	*	*
	2. Self Control	*	*	*	*	*	*
	3. Dental & Medical	*	*	*	*	*	*
	4. Vision & Hearing	*	*	*	*	*	*
3.	1. Concentration	*	*	*	*	*	*
	2. Self-Control	*	*	*	*	*	*
	3. Dental & Medical	*	*	*	*	*	*
	4. Vision & Hearing	*	*	*	*	*	*
4.	1. Attentiveness	6	5.10	2.17	5.53	2.33	0.16
	2. Auditory Association	6	5.89	2.50	5.89	2.50	0.00
	3. Attendance	6	2.24	1.00	2.24	1.00	0.00
	4. Nutrition	6	2.24	1.00	2.24	1.00	0.00
5.	1. Attentiveness	6	4.34	1.83	5.10	2.17	0.34*
	2. Auditory Association	6	5.89	2.50	5.89	2.50	0.00
	3. Attendance	6	6.71	3.00	6.47	2.83	0.17
	4. Nutrition	6	7.31	3.17	6.47	2.83	0.34*
6.	1. Attentiveness	5	5.47	2.60	5.77	2.80	0.20
	2. Auditory Association	5	7.21	3.40	7.21	3.40	0.00
	3. Nutrition	5	6.73	3.20	6.73	3.20	0.00
	4. Attendance	5	7.21	3.40	7.85	3.80	0.40

*Statistically significant at .05 level

Special Education
Language Experience

Grade Level	Non-Cognitive	N	Pre-Test SD	Pre-Test $\overline{X}$	Post-Test SD	Post-Test $\overline{X}$	G
1.	1. Vision & Auditory	20	4.39	2.33	3.1	2.66	0.33
	2. Concentration	20	1.8	3.0	1.8	3.00	0.00
	3. Dental & Medical	20	4.7	3.4	4.7	3.4	0.00
	4. Vision & Auditory	20	4.6	2.8	4.6	2.8	0.00
2.	1. Concentration	17	3.77	2.29	6.22	2.86	0.57
	2. Visual/Auditory	17	3.85	2.43	4.30	2.71	0.28
	3. Dental & Medical	17	5.20	2.71	5.20	2.71	0.00
	4. Vision & Auditory	17	4.37	2.57	5.20	2.71	0.14
3.	1. Attentiveness	15	2.94	2.40	4.67	2.80	0.40
	2. Concentration	15	3.12	2.20	4.67	2.80	0.60*
	3. Cultural Awareness	15	4.00	2.00	3.55	2.60	0.60*
	4. Attendance	15	3.43	2.80	3.43	2.80	0.00
4.	1. Attentiveness	16	4.76	2.75	4.76	2.75	0.00
	2. Concentration	16	2.59	2.50	3.70	2.75	0.25
	3. Concentration	16	2.28	2.25	2.60	2.50	0.25
	4. Cultural Awareness	16	2.28	2.25	2.60	2.50	0.25
5.	1. Maturation	12	3.00	3.00	3.00	3.00	0.00
	2. Concentration	12	3.00	3.00	3.00	3.00	0.00
	3. Cultural Awareness	12	2.00	2.00	2.00	2.00	0.00
	4. Speech	12	2.00	2.00	2.00	2.00	0.00
6.	1. Maturation	5	0.00	2.00	0.00	3.00	1.00
	2. Concentration	5	0.00	3.00	0.00	3.00	0.00
	3. Social Services	5	0.00	3.00	0.00	3.00	0.00
	4. Cultural Awareness	5	2.53	2.00	4.80	2.40	0.40
7.	1. Maturation	12	0.50	2.50	3.00	3.00	0.50
	2. Improve Concentration	12	0.50	2.50	3.00	3.00	0.50
	3. Develop Cultural Awareness	12	0.50	2.50	3.00	3.00	0.50
	4. Need of Speech Services	12	0.50	1.50	0.50	1.50	0.00

*Statistical significant at .05 level

Special Education
Computational Skills

Grade Level	Non-Cognitive category	N	Pre-Test		Post-Test		
			SD	$\bar{X}$	SD	$\bar{X}$	G
1.	1. Improve Concentration	13	2.50	1.00	3.60	2.00	1.00*
	2. Improve Vision/Auditory Problems	13	1.41	2.00	3.28	3.00	1.00*
	3. Dental & Medical	13	1.41	2.00	3.28	3.00	1.00*
	4. Vision & Auditory	13	1.41	2.00	3.28	3.00	1.00
2.	1. Improve concentration	8	0.00	2.00	0.00	3.00	1.00
	2. Improve Vision problem	8	4.44	2.50	4.44	2.50	0.00
	3. Vision & Auditory	8	4.44	2.50	4.44	2.50	0.00
	4. Dental & Medical	8	2.50	3.00	3.60	3.00	0.00
3.	1. Improve Concentration	3	0.00	2.00	0.00	3.00	1.00
	2. Improve Attentiveness	3	2.94	2.33	4.24	3.00	0.28
	3. Cultural Awareness	3	2.94	2.33	4.24	3.00	0.67
	4. Concentration	3	2.83	2.00	2.49	2.67	0.67
4.	1. Improve Concentration	12	3.92	1.75	5.28	2.33	0.58
	2. Improve Attentiveness	12	4.46	1.67	5.28	2.33	0.66
	3. Concentration	12	4.46	1.67	5.28	2.33	0.66
	4. Cultural Awareness	12	4.46	1.67	5.28	2.33	0.66
5.	1. Improve Maturation	2	3.00	3.00	3.00	3.00	0.00
	2. Improve Concentration	2	3.00	3.00	3.00	3.00	0.00
	3. Speech	2	2.00	2.00	2.00	2.00	0.00
	4. Cultural Awareness	2	2.00	2.00	2.00	2.00	0.00
6.	1. Improve Concentration	11	6.32	2.00	9.48	3.00	1.00
	2. Improve Maturation	11	6.32	2.00	9.48	3.00	1.00
	3. Social Services	11	9.47	3.00	9.47	3.00	1.00
	4. Cultural Awareness	11	6.32	2.00	9.48	3.00	1.00
7.	1. Improve Concentration	4	3.46	2.00	5.20	3.00	1.00
	2. Improve Maturation	4	3.46	2.00	5.20	3.00	1.00
	3. Speech	4	3.46	2.00	3.46	2.00	0.00
	4. Cultural Awareness	4	3.46	2.00	3.46	2.00	0.00

* Statistical significant at .05 level

APPENDIX E

NORMAL CURVE EQUIVALENTS (NCE)

Normal Curve Equivalents (NCE)*

Hints for Making NCEs More Meaningful

Scales of any kind become meaningful through associations, for example, that 20° Fahrenheit is cold, that 72° F is comfortable and that 95° F is hot. As we switch over to the Celsius scale, we will at first translate temperatures into their Fahrenheit equivalents. Before long, however, we will "know" the coldness of -6° C and the heat of 30° C, without any need to translate. Eventually the same sort of understanding will emerge for Normal Curve Equivalents (NCE). To help during the transition period, however, the following associations are offered.

NCEs are like percentiles

Both an NCE of 50 and a percentile of 50 are exactly average. While NCEs do not match percentiles at other points (except for 1 and 99), the analogy is quite useful when trying to describe achievement gains measured in NCEs. While it is not strictly correct to talk about NCE gains as if they were percentile gains, it will probably facilitate communication and enhance understanding to do so.

An NCE of 50 is at grade level

Regardless of the time of year at which testing is done and the grade level tested, a properly derived NCE score of 50 will always be the national average for that grade level and month. Being average means being exactly at grade level. NCEs below 50 signal below average achievement levels or below grade level performance. An NCE of 30 is exactly the same distance below grade level at every grade. Finally, an NCE of 30 is always exactly twice as far below grade level as an NCE of 40.

An NCE gain of zero means that the Title I Project produce no gain

A zero NCE gain does not mean that the student or group of students learned nothing between pretests and post-tests. They almost certainly answered more items correctly at the end of the instructional period than at the beginning. The zero NCE gain simply means that the amount of learning was precisely what would have been expected had there been no Title I project. In other words, it means that the Title I project added little if anything to the regular school program.

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* Exerpted from G. Kasten Tallmadge's Technical Paper No. 2, Interpreting NCEs - ESEA Title I Evaluation and Reporting System, RMC Research Corporation, Mountainview, California, October 1976.

All NCE gains greater than zero are good

Whenever the evaluation shows an NCE gain greater than zero, it means that the Title I pupils profitted from participating in the project. In general, the larger the NCE gain, the more effective the project. It is not possible, however, to designate any specific NCE gain as the criterion for exemplary or outstanding projects.

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Evaluation according to new models demands more technically sophisticated procedures. Certain terminology necessary for the anaylsis requires definition. There follows a glossary of terms related to the evaluation effort.

Normal Curve Equivalent (NCE)	A standard score developed to have limited correspondence to percentile rankings. NCEs are equal-interval scores. They can be legitimately aggregated and averaged.
Percentile	One of the 99 point scores that divide a ranked distribution into groups, each of which contains 1/100 of the scores. A percentile rank is a person's rank in a standard group of 100 persons representative of the full range of normative population. If a person obtains a percentile rank of 70, his standing is regarded as equaling or surpassing 70 percent of the normative group on which the test was standardized.
Correlation Coefficient	This is the most commonly used measure of relationship between paired facts or of the tendency of two or more variables, or attributes to go hand-in-hand. It ranges in value from -1.00 for perfect negative relationship through 0.00 for none or pure chance to +1.00 for perfect positive relationship.
Anticipated Achievement	The Anticipated Achievement of a student is the value obtained from the Anticipated Achievement Norms by using the school grade classification of the student. This Anticipated Achievement value, when determined for a student, is interpreted as the achievement performance typical of a homogeneous nationwide sample of students who have the same school grade classification of this particular student. Thus, it is possible, through the use of the Anticipated Achievement Norms to establish a performance standard for an individual student.
Frequency Distribution	A tabulation of scores from high to low (or low to high) showing the number of persons who obtain each score or group of scores.
Norms	Summarized statistics that describe the test performance of reference groups of pupils of various grades in the standardization group for the test.
Standardization Sample	Refers to that part of the reference population which is selected for use in norming a test. This sample should be representative of the reference population in essential characteristics, such as geographical representation, age and grade.

Standardized Test	A test that is composed of empirically selected materials, has definite directions for administration, scoring and use, data on reliability and validity, and has adequately determined norms.
Scaled Score	A unit in a system of equated scores established for the raw scores of a test so that the scaled score values may themselves be interpreted usually as representative of the mean performance of certain reference groups and so that intervals between any pair of scaled scores may be interpreted as differences in terms of the characteristics of the reference group.
Ceiling	The upper limit of ability that can be measured by a test. Individuals are said to have reached the ceiling of a test when they have abilities that are above the highest performance level at which the test can make reliable discriminations. When the ceiling of a test is reached with an individual or group, the next higher level of the test should be used.
Floor	The lower limit of ability that can be measured by a test. Individuals are said to have reached the floor of a test when they have abilities that are below the lowest performance level at which the test can make reliable discriminations. When the floor of a test is reached with an individual or group the next lower level of test should be used.